Infinity®

HPS500

High-Current Powered Subwoofer

Technical Manual

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Woodbury, New York 11797

A Harman International Company

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CAUTIONS AND WARNINGS

BEFORE THIS AMPLIFIER IS PLUGGED IN, make sure its rated voltage corresponds to the voltage of the AC power source to be employed. Failure to use the correct voltage could cause damage to the amplifier when the AC power cable is plugged in. Do not exceed the rated voltage by more than 10%; operation below 90% will degrade performance or cause the unit to shut off.

WHEN SERVICING THIS AMPLIFIER:
1. Do not touch the metal frame of the woofer (if removed from the cabinet) when driving the amplifier at high power levels. In the unlikely event that the output devices in the amplifier fail and present an open circuit during their operation, AND the driver voice coil was to come in contact with the motor assembly, hazardous voltage could be present at the woofer frame.

2. When 120/230v-based test equipment is connected to the amplifier in any way, use of a 1000W isolation transformer (Stancor model GIS-1000 or similar) on the subwoofer is necessary for safety; in addition, an isolator plug, (a three-to-one pin adapter sometimes called a "cheater plug") should be used on the power cord plug of the test equipment being used.

GENERAL SPECIFICATIONS

Frequency Response (±3dB)	22Hz – 120Hz
Output	500W
Driver	15" Downfiring Woofer with Hyperflared Port
Dimensions (H x W x D)	19-3/4" x 19" x 22-7/16" 502mm x 483mm x 570mm
Weight	77.2 lbs./35kg.

Refinements may be made on occasion to existing products without notice, but will always meet or exceed original specifications unless otherwise stated.

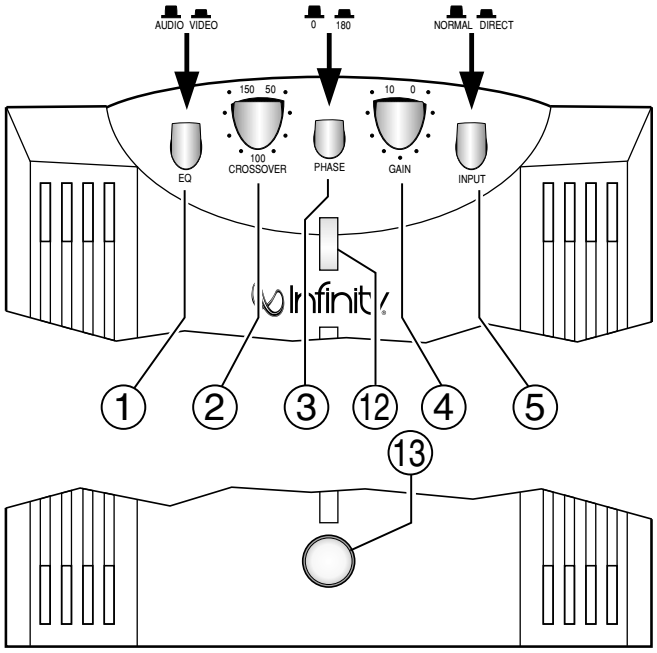
HPS500 SPECIFICATIONS

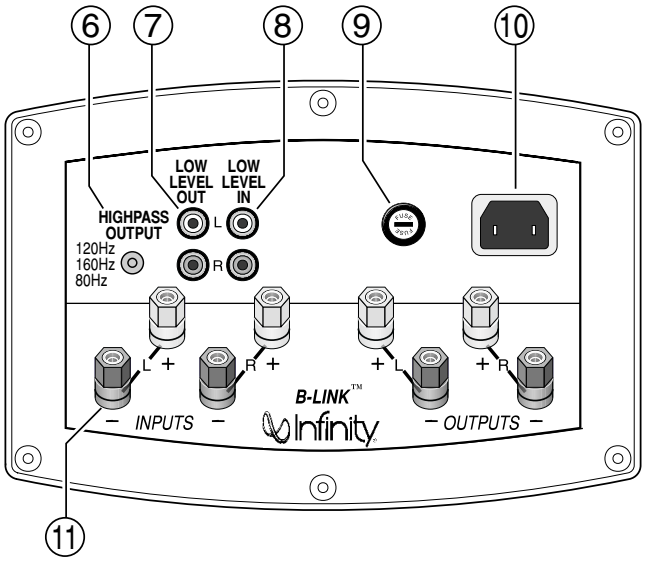
Infinity HPS-500 500w Powered Sub Amp SPECIFICATIONS

Frequency respose 22Hz - 120Hz
Drive Unit 15" Woofer

Weight	77.2 lbs./35kg				
Dimensions (H x W x D) 19 3/4 x 19 x 22 7/16" (502 x 483 x 570mm)					
LINE VOLTAGE 120VAC/60Hz					
LINE VOLTAGE 230VAC/50Hz					
Parameter	**Specifications**	**Unit**	**Limits**	**Conditions**	**Notes**
Amp Section					
Type (Class AB, D, other)	AB Bridged	--	--	BASH® Power Supply	
Load Impedance (speaker)	20	Ohms	--	Nominal	Z-curve required
Rated Output Power	500	Watts	400	1 input driven	
THD@ Rated Power	0.1	%	1	22k filter	500w
THD @ 1 Watt	0.3	%	1	22k filter	
Polarity	0	deg.	0° ±20	In phase at 50Hz in Direct Mode	.250 faston (+)……205 faston (-)
DC Offset	20	mV-DC	50	@ Speaker Outputs	
Damping factor	>200	DF	--		
Input Sensitivity					
Input Frequency	31	Hz	31	Nominal Freq.	1 input driven
Line Input	350	mVrms	±2dB	To Rated Power	1 input driven
Speaker/Hi Level Input	8	Vrms	±2dB	To Rated Power	(-26dB below Line In)...1 input driven
Signal to Noise					
SNR-A-Weighted	100	dBA	90	relative to rated power	A-Weighting filter
SNR-unweighted	70	dBr	70	relative to rated power	22k filter
SNR rel. 1W-unweighted	60	dBr	55	relative to 1W Output	22k filter
Residual Noise Floor	2	mVrms	3	Volume @max, using RMS reading DMM/VOM (or A/P)	
Residual Noise Floor	1.5	mVrms(max)	2	Volume @max, w/ A/P Swept Bandpass Measurement (Line freq.+ harmonics)	
Input Impedance Line Input	3k	ohms	N/A		
Speaker/Hi Level Input	470	ohms	N/A		
Active Filters					
Low Pass (fixed or variable)	Variable			Note: Center positon = 100Hz	
Low Pass filter (point or range)	45-120	Hz	±2dB		
Slope	12	dB/Octave	n/a		
Q	0.707	Damping	n/a		
Normal-Direct Switch	yes	--	functional		
Low Pass filter (point or range)	160 (direct), 45-120 (normal)	Hz	±2dB		
Slope	12	dB/Octave	--		
Q	--	Damping	--		
Subsonic filter (HPF)	31	Hz	±2dB		
Slope	12	dB/Octave	--		
Q	--	Damping	--		
Video Boost Switch	yes	--	--		
Boost	+3	dB	--		
Range	40-80	Hz	--		
Features	--				
Limiter					
Line Out Crossover Switch					
Phase Switch		--	functional		
Line Output (80Hz HPF-unity gain)		--	functional		
Volume pot Taper (lin/log)	log	--	functional		
Input Configuration	--	--			
Line Out: 80/120/160Hz HPF	80/120/160	Hz	functional		
Slope	6	dB/Octave	functional		
Q	0.707	Damping	functional		
Power on Delay time	>3	sec.	>3	AC Power Applied	
Transients/Pops					
ATO Transient	10	mV-peak	20	@ Speaker Outputs	
Turn-on Transient	500	mV-peak	1v-pp	@ Speaker Outputs	AC Line cycled from OFF to ON
Turn-off Transient	500	mV-peak	1v-pp	@ Speaker Outputs	AC Line cycled from ON to OFF
Efficiency					
Stand-by Input Power	10	Watts	15	@ nom. line voltage	
Power Cons.@rated power	670	Watts	N/A	@ nom. line voltage	
Protection					
Thermal Protection	yes		functional		Decreases gain at 113°C -1.3dB
DC Offset Protection	yes		functional	DC present at Speaker Out leads	Relay or crowbar (for driver/fire protection)
Line Fuse Rating	4	Amps	functional	Type-T or Slo Blo	External fuse with UL/SEMKO rated holder

CONTROLS AND CONNECTIONS





1. Equalizer - The EQ optimizes subwoofer performance for audio or video playback.

2. Crossover Frequency - The crossover frequency knob determines the highest frequency your subwoofer will reproduce. It allows a seamless transition from the subwoofer to the satellite speakers.

3. Phase - The phase switch is used to adjust the relative polarity of the subwoofer. When the phase switch is up, the phase is normal - when the switch is depressed, the subwoofer is 180 degrees out of phase.

4. Gain - This knob controls the volume status of the subwoofer.

5. Input - The Input switches between the normal line/speaker inputs and the direct-LFE input.

6. Highpass Output - This toggle switch controls the roll-off frequency of the high pass filter, the LOW LEVEL OUT connectors, #7.

7. Low Level output - These RCA output jacks are used when it is desirable to limit the low frequencies to your main receiver/power amplifier; see more on page 6

8. Low Level Input - Main RCA input jacks, recommend hook-up method. When using a single LFE (Low Frequency Effects) cable from a Dolby Digital receiver/processor, use either left or right RCA jack.

9. Fuse - Use only same type of fuses. Use a 4A 250v MDL Slo-Blo fuse for the 120v model, and a 2A 250v MDL Slo-Blo fuse for the 230v model.

10. AC Plug - Plug in the AC line cord in here.

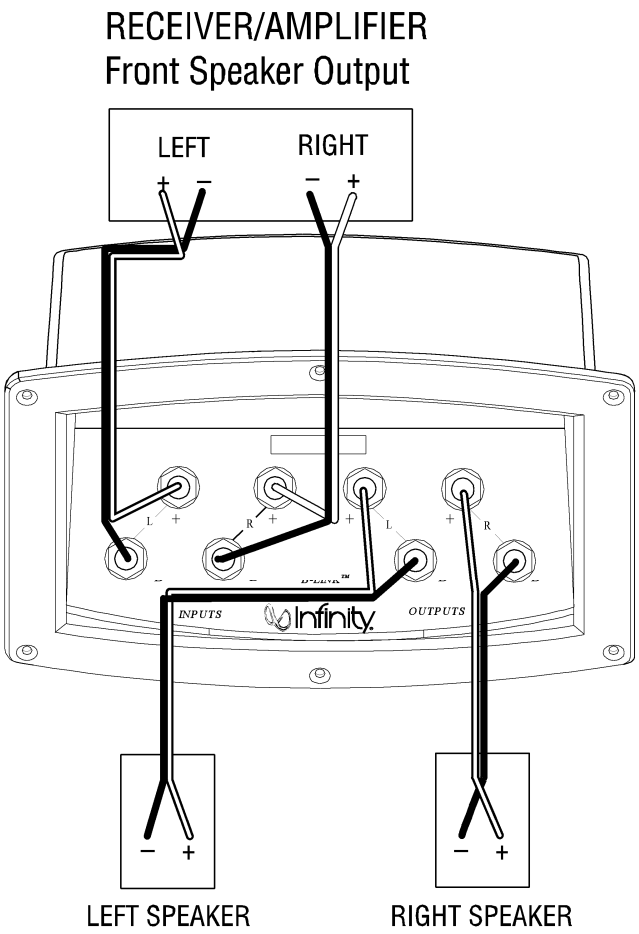
11. High Level Inputs - These High Level Inputs are for receivers that do not have line-level “pre-amp out” or “subwoofer out” jacks. When a pair of main or satellite speakers are attached to the OUTPUT terminals, they are driven the full range of frequencies as generated by the music source (receiver, amplifier, etc.)

12. LED - This LED turns green when the HPS250 is receiving power (is turned on) and is receiving a signal.

13. Main - This button is the master power switch.

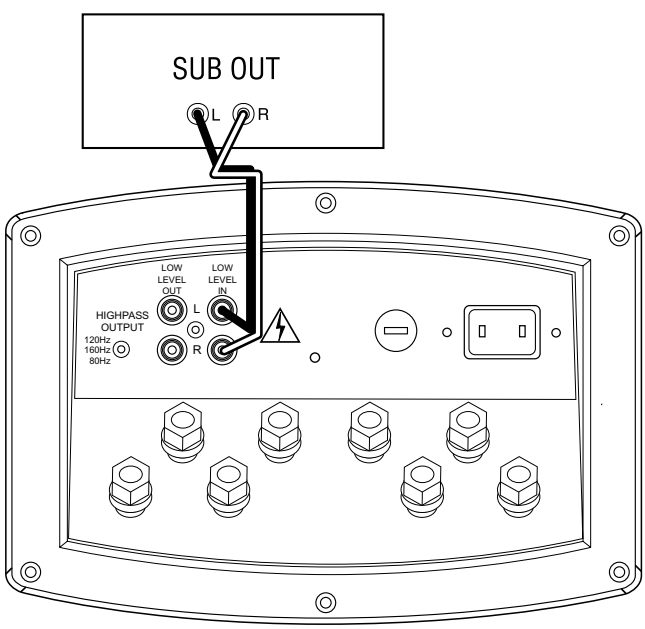
HPS500 CONNECTIONS

If your receiver/processor does not have subwoofer outputs for the left and right channels:



If your receiver/processor has subwoofer outputs for the left and right channels:

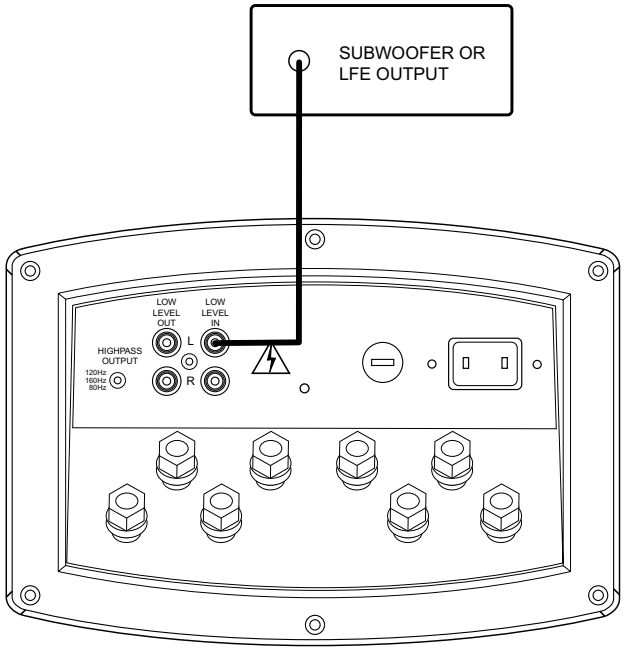
NOTE: Some receivers have a single subwoofer output (do not confuse this with a single LFE output as described on the next page). In that case, it is recommended that you use a Y connector (not included) to maximize performance.



HPS500 CONNECTIONS Continued...

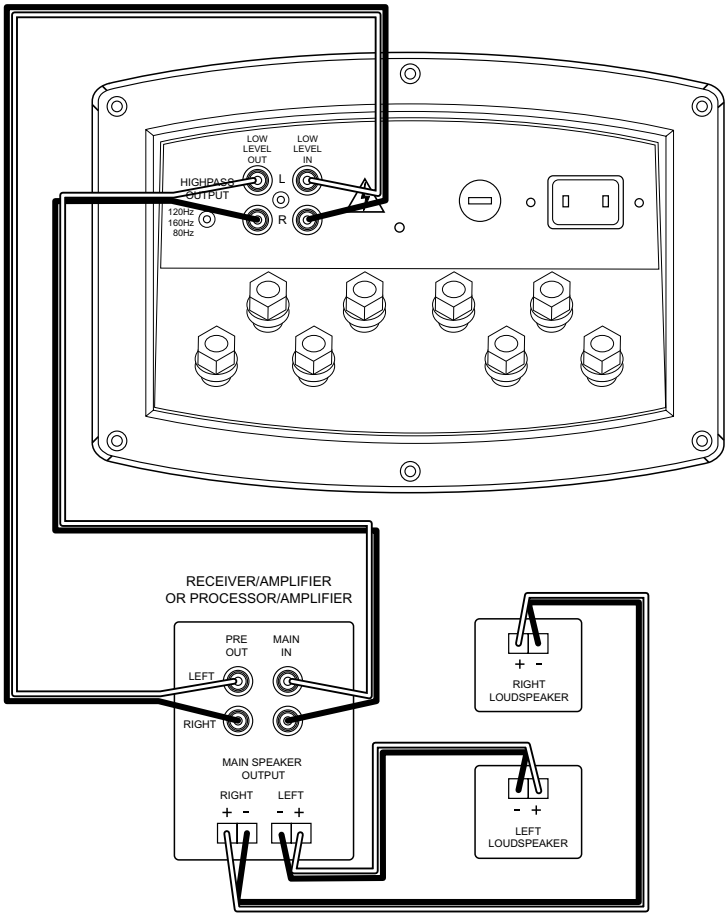
If you have a Dolby Digital or DTS® receiver/processor with a low-frequency-effect (LFE) output:

NOTE: In this case, you do not need to use a Y connector: Simply connect the LFE output on your receiver/processor to either the left or right input on the subwoofer:



If your receiver/amplifier has preamp output jacks and main input jacks for the left and right channels or you have a separate preamp/processor and power amplifier:

This method of hookup can offer the highest level of performance for your complete loudspeaker system. Your subwoofer incorporates an adjustable high-pass crossover in addition to a variable low-pass crossover. When hooked up as shown on the right, the subwoofer will limit the low-frequency information that is returned to your receiver/amplifier. Your receiver/amplifier does not need to waste valuable power reproducing the low frequencies. In addition, since no low-frequency information is being sent to your main loudspeakers, they are able to reproduce mid and high frequencies with greater clarity.



OPERATION

Setting the Controls

1. Initially set the HPS500's Gain control to the "O" position.

2. Initially set the HPS500's Crossover control to the 100Hz position.

Turning the Power On

3. Plug your HPS500's AC cord into a wall outlet. Do not use the outlets on the back of the receiver.

4. Turn on your HPS500 sub by pressing the power button on the center of the front panel.

5. Turn on your entire audio system and start a CD or movie sound track at a moderate level.

Adjusting the Gain Control

6. Turn your HPS500's Gain control (page 4, #4) up to the "5" position (half way). If no sound emanates from the subwoofer, check the AC-line cord and input cables. Are the connectors on the cables making proper contact? Is the AC plug connected to a "live" receptacle? Has the power button been pressed to the "on" position? (Note: A green indicator on the front panel will light when the power is on.) Once you have confirmed that the subwoofer is active, proceed by playing a CD, record or cassette. Use a selection that has ample bass information.

7. Set the overall volume control of the preamplifier or stereo to a comfortable level. Adjust the subwoofer's Gain control (page 4, #4) until you obtain a pleasing blend of bass. Bass response should not overpower the room but rather be adjusted so there is a harmonious blend across the entire musical range. Many users have a tendency to set the subwoofer volume too loud, adhering to the belief that a subwoofer is there to produce lots of bass. This is not entirely true. A subwoofer is there to enhance bass, extending the response of the entire system so the bass can be felt as well as heard. However, overall balance must be maintained or the music will not sound natural. An experienced listener will set the volume of the subwoofer so its impact on bass response is always there but never obtrusive.

Crossover Adjustments

8. Crossover Control (page 4, #2) – The Low-Pass control determines the highest frequency at which the subwoofer reproduces sounds. If your main speakers can comfortably reproduce some low-frequency sounds, set this control to a lower frequency setting, between 50Hz – 100Hz. This will concentrate the subwoofer's efforts on the ultradeep bass sounds required by today's films and music. If you are using smaller bookshelf speakers that do not extend to the lower bass frequencies, set the low-pass crossover control to a higher setting, between 120Hz – 150Hz.

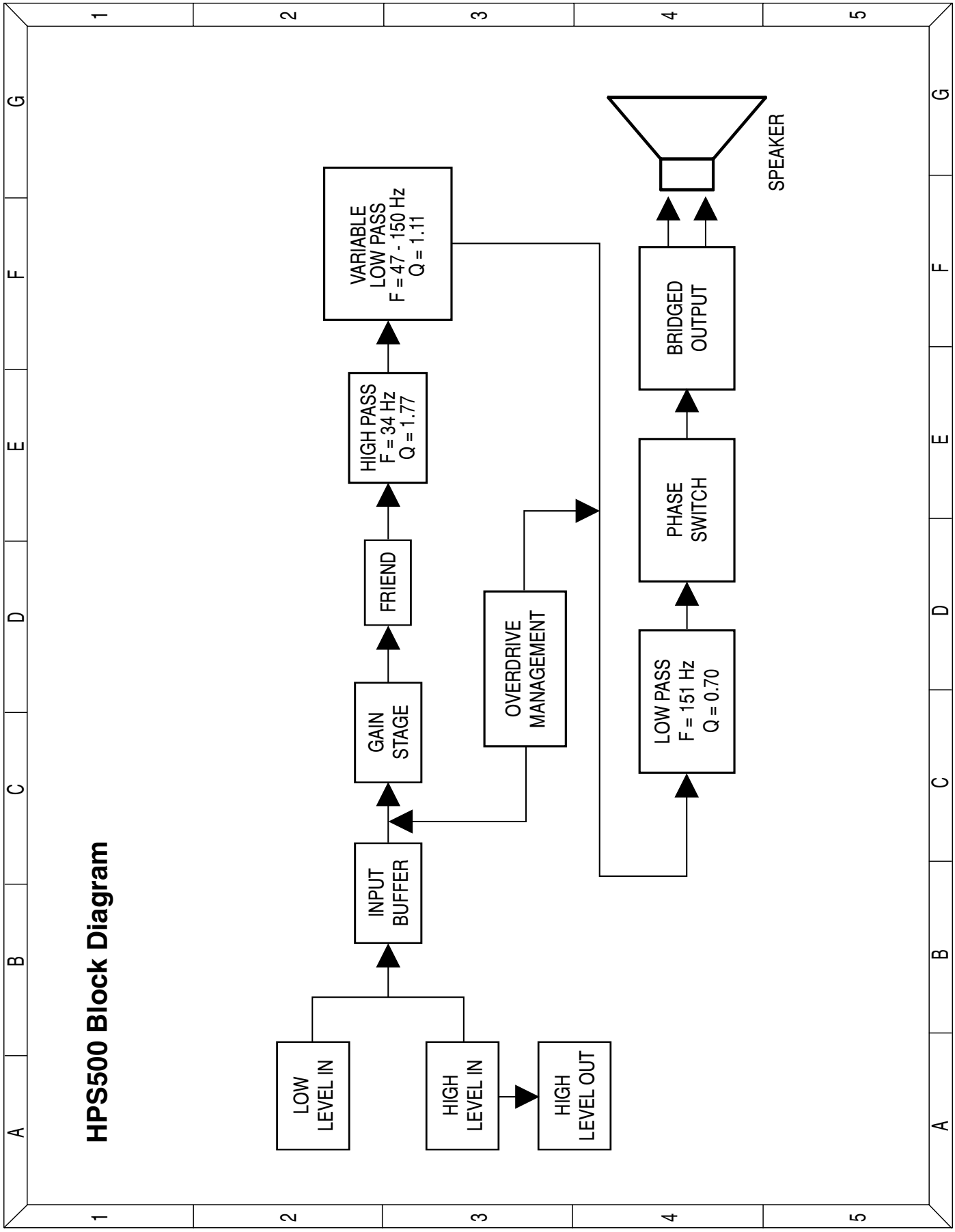
The Phase Control

9. The Phase Control (page 4, #3) determines whether the subwoofer speaker's piston-like action moves in and out with the main speakers, 0 , or opposite the main speakers, 180 . Proper phase adjustment depends on several variables such as room size, subwoofer placement and listener position. Adjust the phase switch to maximize bass output at the listening position.

10. The EQ switch, located on the front panel, optimizes the subwoofer's performance for both movie and music listening. When in the "Video" position, a special EQ circuit is activated, enhancing low frequencies by approximately 3dB at 32Hz and delivering the full impact and excitement of today's movie soundtracks. When in the "Audio" position, the subwoofer provides the accurate and linear frequency response that is ideal when a natural tonal balance is desired for music listening.

11. Remember: every system, room and listener is different. There are not necessarily any right or wrong settings; any setting you choose will result in excellent performance. Should you decide to fine-tune your system for optimum performance, be patient and trust your ears. It will be worth the effort involved to fully "tweak" your system.

HPS500 BLOCK DIAGRAM



HPS500 TEST SET UP AND PROCEDURE

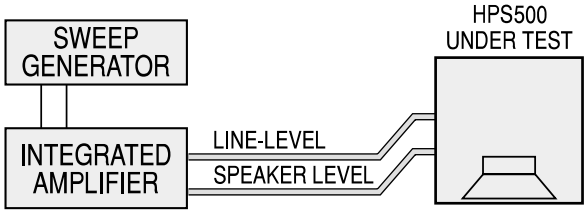
EQUIPMENT

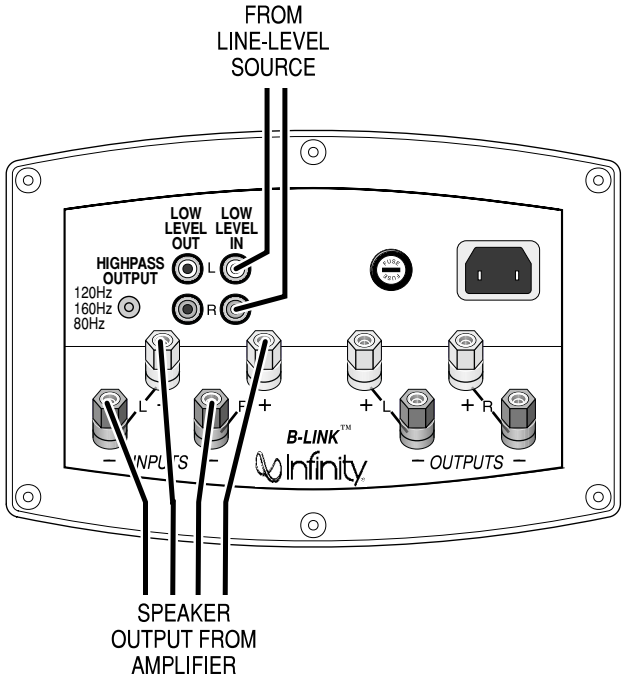
Function generator/signal generator/sweep generator

Integrated Amplifier

Multimeter

Cables - line level (RCA) and speaker cables





Initial Control Settings

1. Audio/Video button should be on AUDIO
2. Crossover control should be set to full CW (150).
3. Phase button can be set to either setting.
4. Gain control should be set to full CCW (0)
5. Normal/Direct button should be on NORMAL.

General Function

UUT = Unit Under Test

1. Connect both right and left line level inputs (RCA) to signal generator and UUT. Use Y-cable if necessary from mono source. GAIN control should be full counterclockwise.
2. Turn on generator, adjust to **100mV, 50 Hz.**
3. Plug in power cord to UUT; push the main AC power button ON. Green LED should be lit.
4. Turn GAIN control full clockwise; immediate bass response should be heard and felt from port tube opening.
5. Turn off generator, turn GAIN control fully counterclockwise, disconnect RCA cables.
6. Connect one pair of speaker cables to both pairs (R) and (L) input terminals. Cables should be connected to an integrated amplifier fed by the signal generator.
7. Turn on generator and adjust so that speaker level output is **4.0V, 50 Hz**.
8. Turn GAIN control full clockwise; immediate bass response should be heard and felt from the port tube opening.

Sweep Function

1. Follow steps 1-4 above, using a sweep generator as a signal source.
2. Sweep generator from **20Hz** to **300Hz**. Listen to the cabinet and drivers for any rattles, clicks, buzzes or any other noises. If any unusual noises are heard, remove driver and test.

Driver Function

1. Remove driver from cabinet following instructions on page 10.
2. Check DC resistance of driver; it should be **21 ohms +/-10%.**
3. Connect a pair of speaker cables to driver terminals. Cables should be connected to an integrated amplifier fed by a signal generator. Turn on generator and adjust so that speaker level output is **30.0V.**
4. Sweep generator from 20Hz to 1kHz. Listen to driver for any rubbing, buzzing, or other unusual noises.

DISASSEMBLY PROCEDURES

Amplifier Removal

1. Lay the subwoofer on its side on a padded surface, amplifier facing upwards.

2. Locate and remove the (2) Allen head screws (#2) at the bottom of the plastic cover with a 3/32" wrench.

3. Slide the amplifier straight down until it clears the slotted brackets (#4) & (#5); pull away from the cabinet and expose for servicing without further disconnection.

4. To remove individual boards if desired, remove Philips screws and all relevant molex or other connectors.

5. Wires threading through the cabinet, glued in place, should be left intact under all circumstances.

Woofer Removal

1. DO NOT ATTEMPT TO PRY THE GRILLE (#10) OUT OF ITS RECESS.

2. Lay the subwoofer on its side on a padded surface.

3. Remove the (4) rubber foot plugs (#15).

4. Remove the (4) 1" foot screws (#16), remove all four feet.

5. Remove all (12) 2" exposed bottom panel screws (#13).

6. Pull the bottom panel (#12) out of the cabinet - one way to accomplish this is to partially screw one of the 2" screws back into a threaded "foot" hole and pull on the screw. Lift the bottom panel & woofer (#9) out of the cabinet.

WHEN SERVICING THIS AMPLIFIER:

1. Do not touch the metal frame of the woofer (if removed from the cabinet) when driving the amplifier at high power levels. In the unlikely event that the output devices in the amplifier fail and present an open circuit during their operation, AND the driver voice coil was to come in contact with the motor assembly, hazardous voltage could be present at the woofer frame.

2. When 120/230v-based test equipment is connected to the amplifier in any way, use of a 1000W isolation transformer (Stancor model GIS-1000 or similar) on the subwoofer is necessary for safety; in addition, an isolator plug, (a three-to-one pin adapter sometimes called a "cheater plug") should be used on the power cord plug of the test equipment being used.

Idle current check, and output stage bias adjustment :

- Remove and expose amplifier assembly by following instructions on the preceding page. All connectors must remain intact.
- Locate and disconnect the CD+ connector on the main board; insert a DC Ammeter set to a low range between the two connectors.
- Locate and adjust R13 and R28 potentiometers on the main board near the connector to maximum CCW.
- Adjust R13 and R28 on the Feature-Linear board fully counter clockwise.
- Apply the appropriate AC power to unit, switch AC power on.
- Adjust R28 until current meter reads 5 mA + idle.
- Adjust R13 until current meter reads 10 mA + idle.
- Switch AC power off.
- Remove current meter and connect CD+ harness to CD+ connector on the Feature-Linear board.

Audio Test :

Check noise:

- Connect a true RMS voltmeter across the power amplifier output,
- (SPKR+ and SPKR- on the Feature-Linear board).
- Vary the Gain and Frequency controls from minimum to maximum, verifying the noise reading on the voltmeter remains less than 8 mV AC.

- Adjust the Gain control to minimum.
- Apply an 800 mV, 60 Hz signal to the Left RCA low level input.
- Vary all controls while looking at the oscilloscope, watch and listen for any irregularities, or distortion.

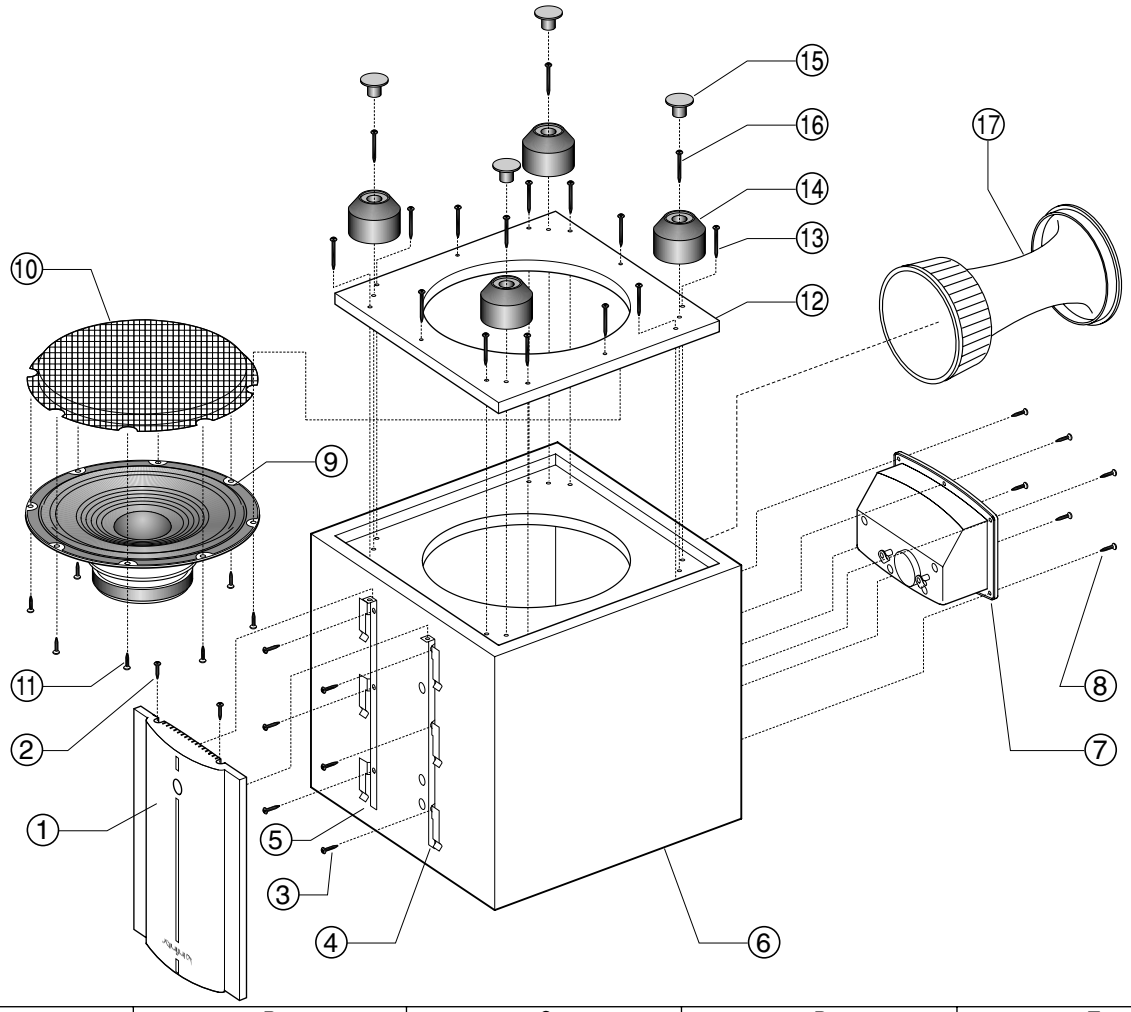
Check power:

- Place a 20 resistive load across the power amplifier output.
- Connect a true RMS voltmeter across the power amplifier output.
- Set Frequency control to maximum.
- Adjust gain control to verify the amplifier will deliver:
  - At least 90 Volts AC, “clean” - no visible distortion
  - At least 100 Volts AC, with visible “rounding of the peaks” distortion.
  - DO NOT RUN AMPLIFIER AT FULL POWER CONTINUOUSLY, FOR MORE THAN 5 SECONDS.

HPS500 CABINET EXPLODED VIEW

Ref.#	Description	Part Number	Qty.
1	AMPLIFIER ASSEMBLY (120V)	NOT FOR SALE	1
	AMPLIFIER ASSEMBLY (230V)	NOT FOR SALE	1
2	AMP. MOUNTING SCREWS, MS, BHXS, 8-32 x .5 BLACK	900701-008	2
3	BRACKET SCREWS, PB, PPH, #8 x .75"	900101-012	6
4	AMP. ASSY. BRACKET, LEFT	334189-001	1
5	AMP. ASSY. BRACKET, RIGHT	334189-002	1
6	CABINET	NOT FOR SALE	1
7	INPUT CUP ASSEMBLY (120V)	334193-004	1
	INPUT CUP ASSEMBLY (230V)	334193-008	1
8	INPUT CUP SCREWS, PB, PPH, #6 x .75"	903401-012	6
9	15" WOOFER	333959-001	1
10	GRILLE	333957-001	1
11	WOOFER SCREWS, PB, PPH, #8 x .75"	62905	8
12	CABINET BOTTOM	NOT FOR SALE	1
13	BOTTOM SCREWS, FLH BLACK #8 x 2"	61577	8
14	FEET	334186-001	4
15	FEET PADS (CAPS)	334192-001	4
16	FEET SCREWS, PB, PTH, #8 x 1"	903101-016	4
17	PORT TUBE	333958-001	1

HPS500
CABINET EXPLODED VIEW

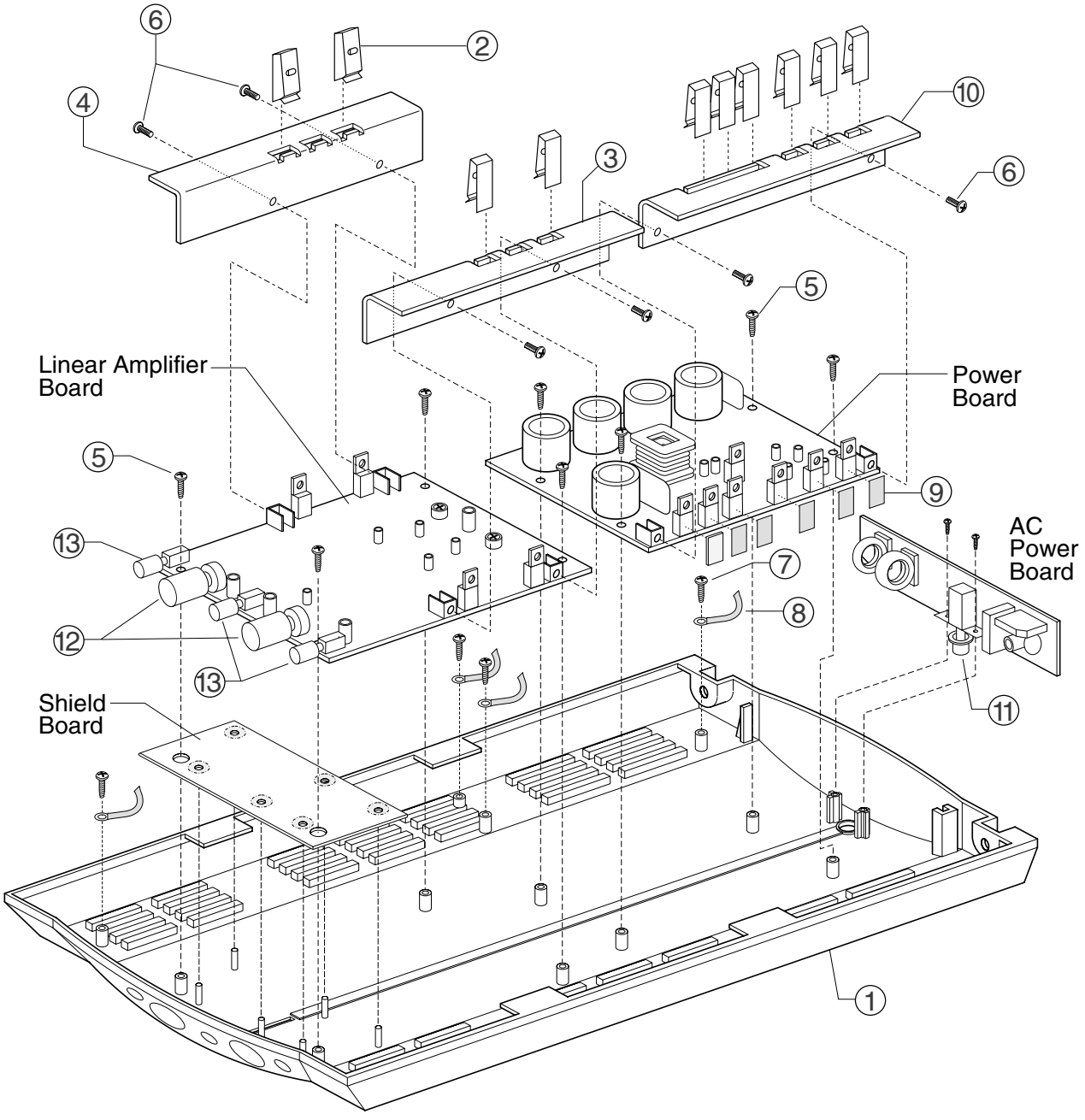


HPS500 AMP ASSEMBLY EXPLODED VIEW

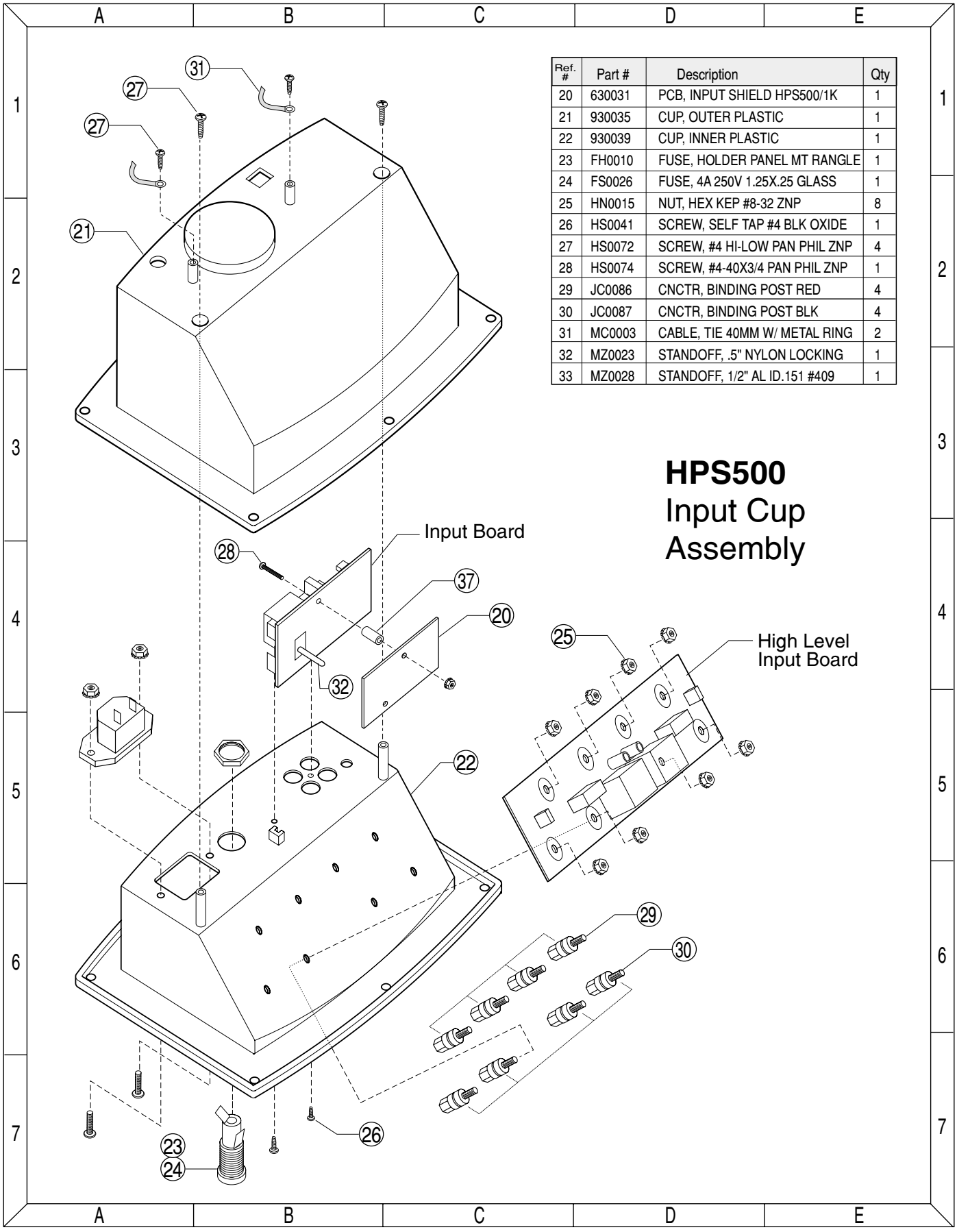
HPS500 Amplifier Assembly

Ref. #	Part #	Description	Qty
1	930042	AMP HOUSING PLASTIC	1
2	810066	MET, HTSNK CLIPS	10
3	810070	MET, HTSNK LEFT	1
4	810071	MET, HTSNK RIGHT	1
5	HS0004	SCREW, 6-32 1/4 PAN PHIL ZNP	8
6	MM0025	MISC, PC MT SCREW TERM 6-32	6
7	HS0072	SCREW, #4 HI-LOW PAN PHIL ZNP	4
8	MC0003	CABLE, TIE 40MM W/ METAL RING	4
9	MS0005	SILPAD, .009"" .3C/W TO3P	5
10	810068	MET, HTSNK	1

Ref. #	Part #	Description	Qty
11	RP0078	KNOB FOR POWER BUTTON	1
12	RP0076	KNOB FOR POTS	2
13	RP0077	KNOB FOR PUSH SWITCH	3



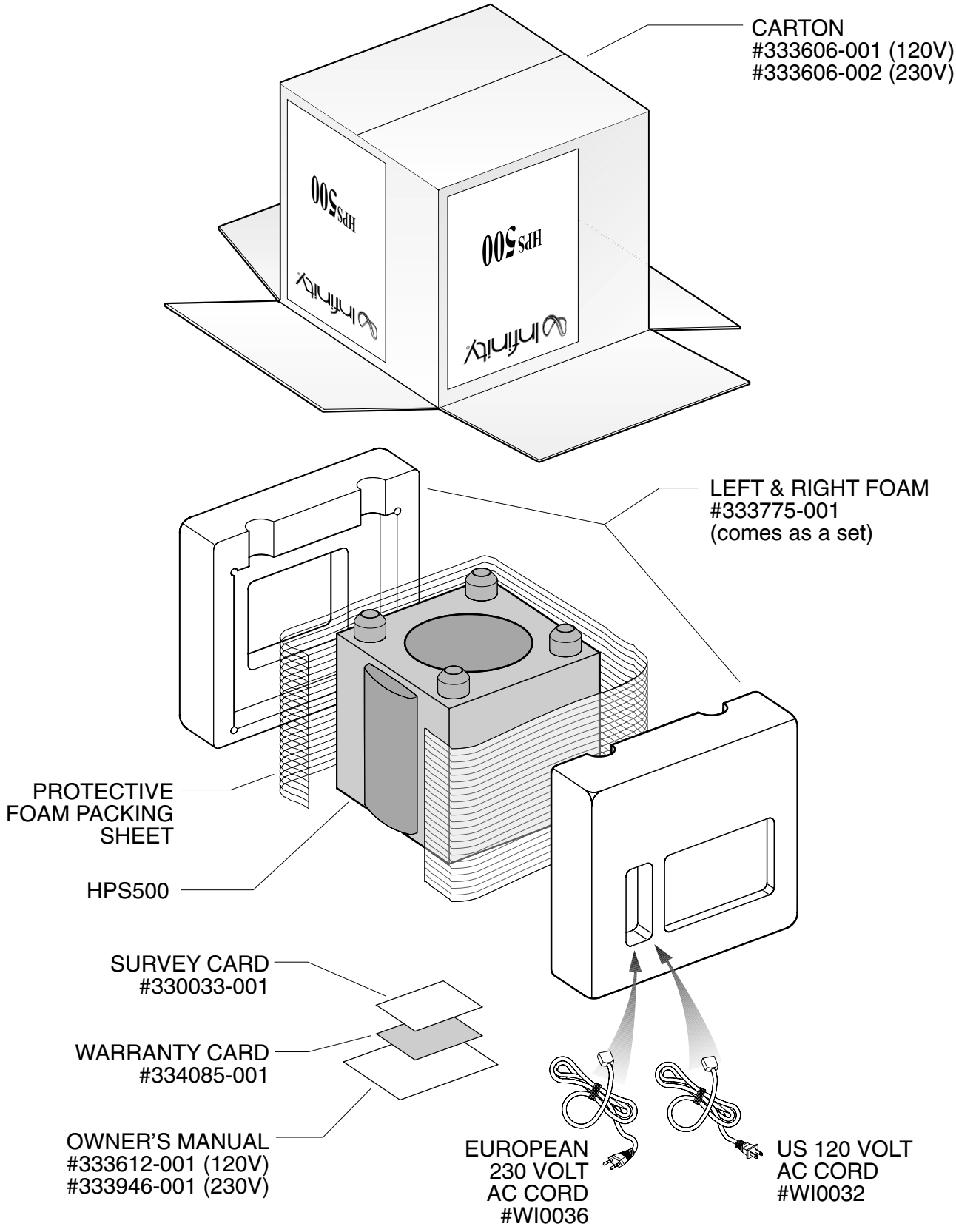
HPS500 INPUT CUP ASSEMBLY EXPLODED VIEW



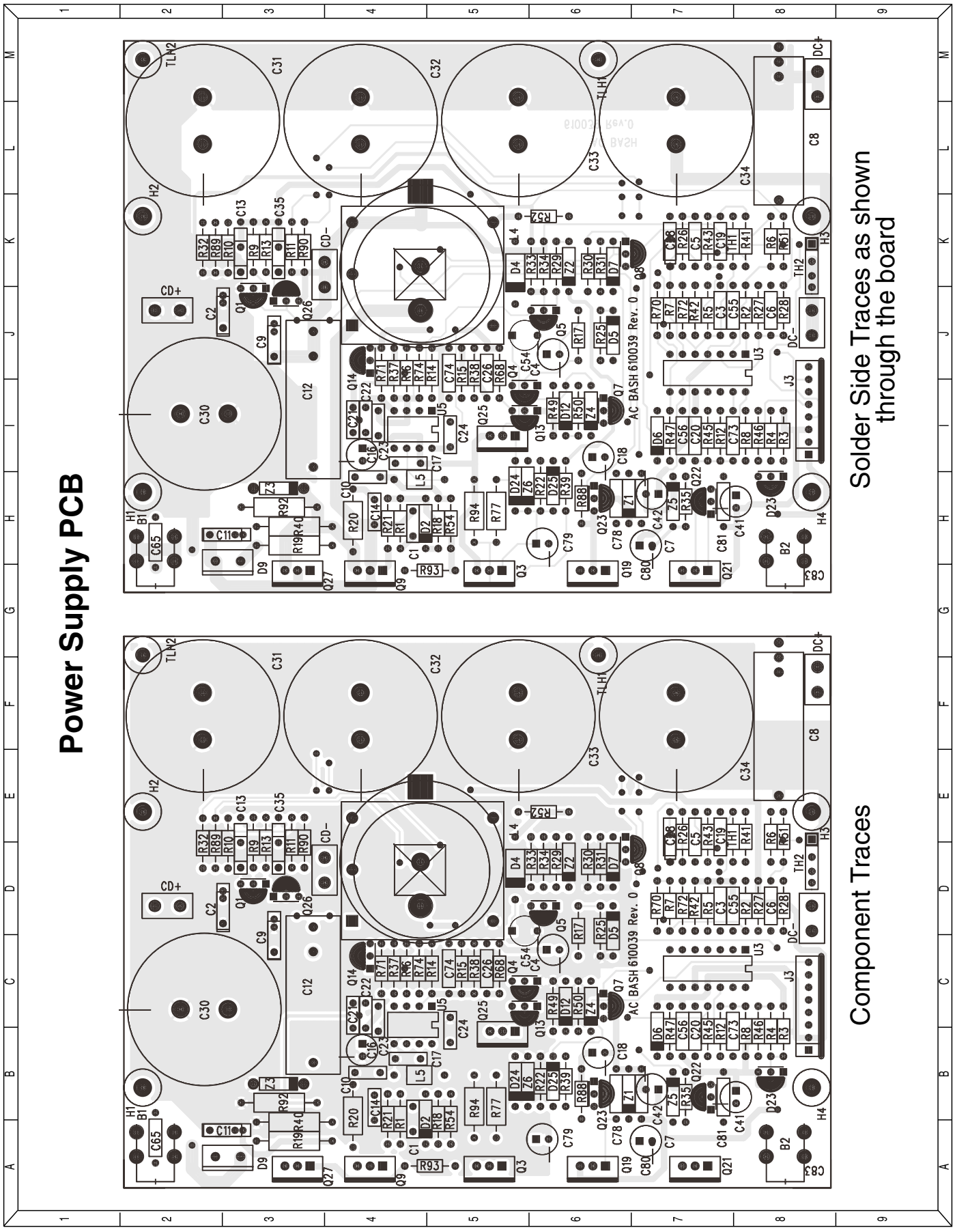
Ref. #	Part #	Description	Qty
20	630031	PCB, INPUT SHIELD HPS500/1K	1
21	930035	CUP, OUTER PLASTIC	1
22	930039	CUP, INNER PLASTIC	1
23	FH0010	FUSE, HOLDER PANEL MT RANGLE	1
24	FS0026	FUSE, 4A 250V 1.25X.25 GLASS	1
25	HN0015	NUT, HEX KEP #8-32 ZNP	8
26	HS0041	SCREW, SELF TAP #4 BLK OXIDE	1
27	HS0072	SCREW, #4 HI-LOW PAN PHIL ZNP	4
28	HS0074	SCREW, #4-40X3/4 PAN PHIL ZNP	1
29	JC0086	CNCTR, BINDING POST RED	4
30	JC0087	CNCTR, BINDING POST BLK	4
31	MC0003	CABLE, TIE 40MM W/ METAL RING	2
32	MZ0023	STANDOFF, .5" NYLON LOCKING	1
33	MZ0028	STANDOFF, 1/2" AL ID.151 #409	1

HPS500 PACKING

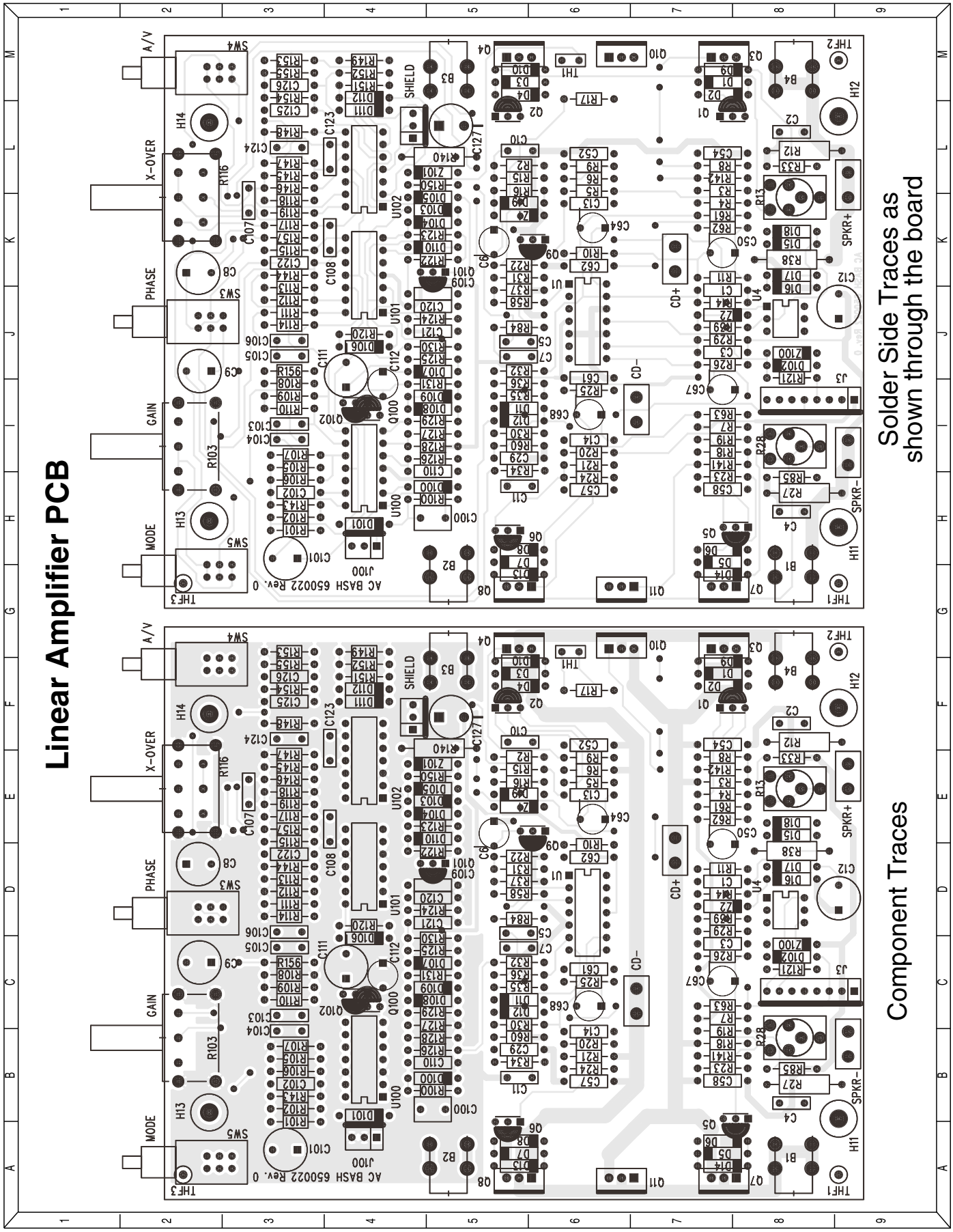
NOTE: For packing and unpacking turn the carton up-side-down.



HPS500 POWER SUPPLY PCB

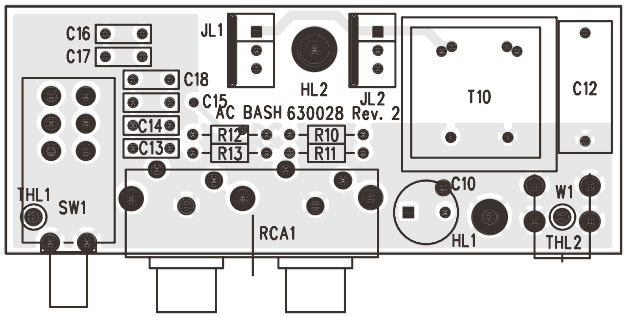


HPS500 LINEAR AMPLIFIER PCB

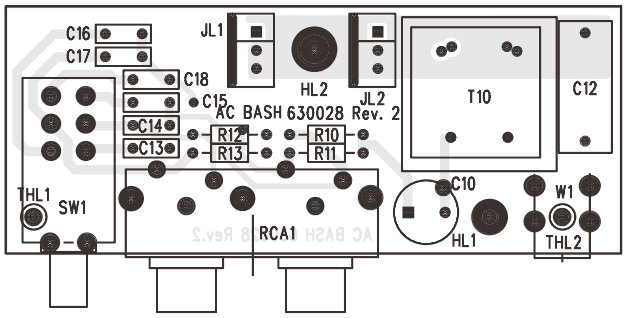


HPS500 AC POWER & LOW LEVEL INPUT PCB's

Low Level Input PCB

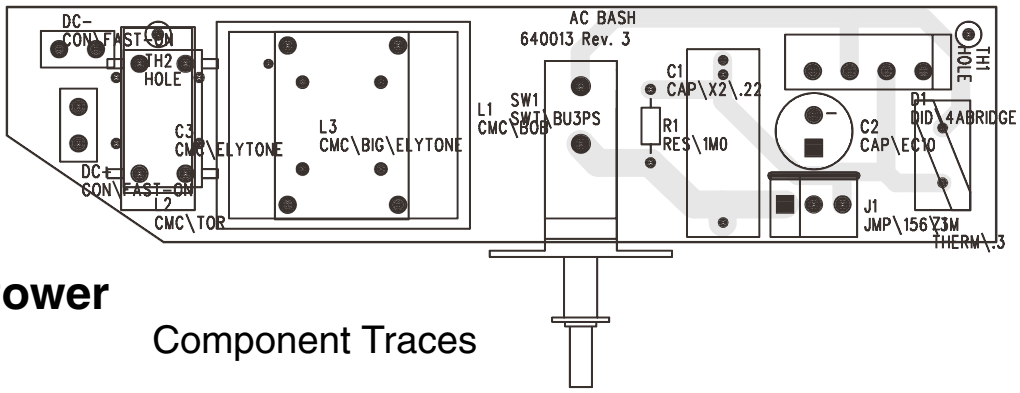


Component Traces

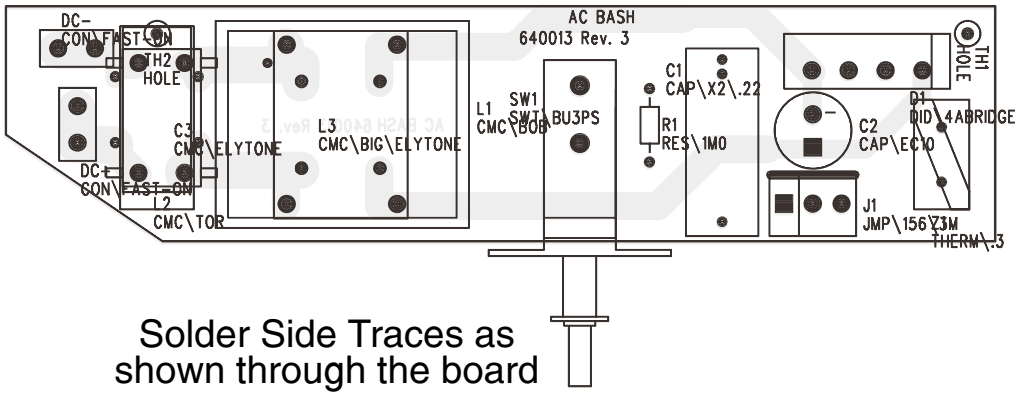


Solder Side Traces as shown through the board

AC Power PCB



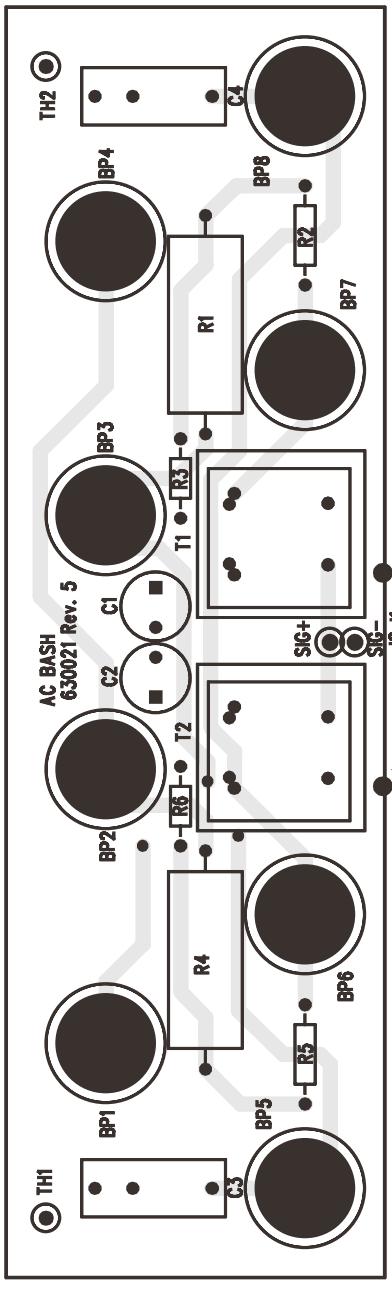
Component Traces



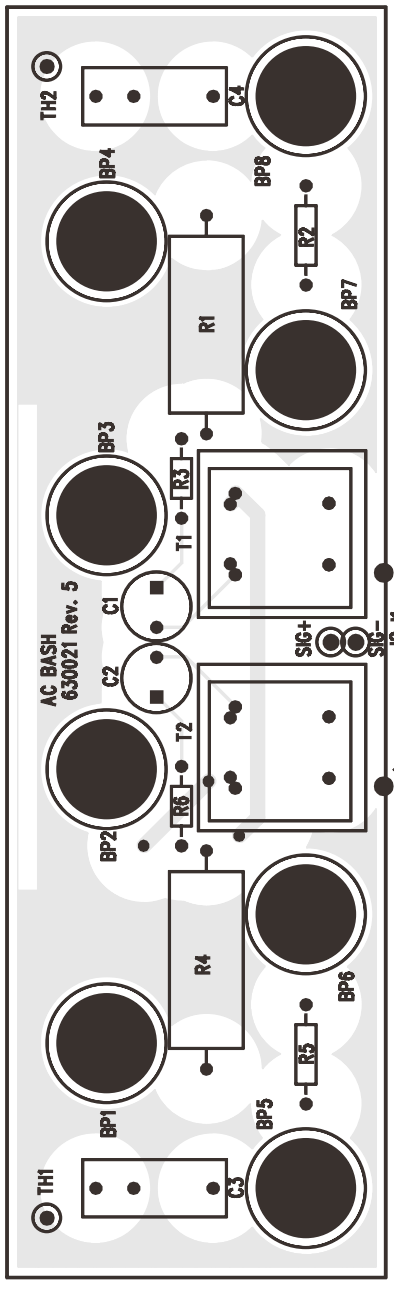
Solder Side Traces as shown through the board

HPS500 HI LEVEL INPUT PCB

Hi Level Input PCB



Component Traces



Solder Side Traces as shown through the board

HPS500 ELECTRICAL PARTS LIST

Power supply PCB

Integrated Circuits

REF #	PART #	DESCRIPTION	QTY
U3	UA0003	OPAMP, QUAD 14PIN DIL LM324N	1
U5	UP0004	PWM, 8PIN DIL UC3842N	1

Transistors

REF #	PART #	DESCRIPTION	QTY
Q1, 8, 23	QB0017	TRANS, NPN 150V 0.6A 2N5551	3
Q3	QB0033	TRANS, NPN 250V 1A TO220 TIP47	1
Q4, 13, 14	QB0002	TRANS, NPN 40V .6A TO92 2N4401	3
Q7, Q22, Q26	QB0018	TRANS, PNP 150V 0.6A 2N5401	3
Q9, 27	QM0015	MOSFET, IRF640 TO220AB	2
Q19	QB0019	TRANS, NPN TIP29B/C T0220	1
Q21	QB0013	TRANS, PNP TIP30B/C TO220	1

Capacitors

REF #	PART #	DESCRIPTION	QTY
C2, 9, 11	CC0021	CAP, C 470PF 1KV 10%	3
C3, 73	CC0020	CAP, CA 470PF 100V 5%	2
C4, 79	CE0010	CAP, E 22UF 50V 20% 105C	2
C6, 19, 20	CC0065	CAP, CA 2200P 50V 5%	3
C10	CC0020	CAP, CA 470PF 100V 5%	1
C12	CF0146	CAP, F 6.8UF 250V 10% 27MMLS	1
C13, 35, 65	CC0059	CAP, CA .1UF 100V 20%	3
C14	CC0032	CAP, C 2200PF 600V 10%	1
C17	CC0078	CAP, C .22UF 50V 10% .2LS	1
C21	CF0008	CAP, F 2200PF 100DC 63AC 5%	1
C22, 23	CC0095	CAP, C 470P 100V 5	2
C24	CC0050	CAP, C .1UF 50V 20% .2LS	1
C28	CC0087	CAP, CA .01UF 100V 20%	1
C30, 31, 32, 33, 34	CE0121	CAP, E 470UF 200V 20% 30X25"	5
C55, 56, 80, 81	CC0082	CAP, CA .1UF 50V 20%	4
C74	CC0072	CAP, CA 100PF 100V 10%	1

Diodes

REF #	PART #	DESCRIPTION	QTY
D2, 5, 6, 7, 12, 24, 25	DS0001	RECT, 100mA 75V SIGNAL 1N4148T	7
D9	DR0085	RECT, 8A 400V TO220AC MUR860	1
D23	DZ0018	ZENER, 2.5-37V SHUNT TL431CLP	1
Z1, 5, 6	DZ0002	ZENER, 500mW 12V 5% 1N5242B	3

Resistors

REF #	PART #	DESCRIPTION	QTY
L3	RC0273	RES, ZERO OHM 1/4W	1
R2, R27, R37	RM0180	RES, MF 4.99k 1/4W 1%	3
R3	RC0037	RES, CF 2.0k 1/4W 5%	1
R4	RM0249	RES, MF 28.7k 1/4W 1%	1
R5, 6, 10, 11, 28, 70	RM0011	RES, MF 100k 1/4W 1%	6
R7, R47	RM0120	RES, MF 30.1k 1/4W 1%	2
R8, 38	RC0127	RES, CF 30k 1/4W 5%	2
R9, R13	RM0079	RES, MF 750 1/4W 1%	2
R12	RC0116	RES, CF 330k 1/4W 5%	1
R14, R15, R35, R88	RM0113	RES, MF 20.0k 1/4W 1%	4
R16	RM0034	RES, MF 4.32k 1/4W 1%	1
R17	RC0006	RES, CF 10.k 1/4W 5%	1
R18, R39, R89, R90	RM0336	RES, MF 47 0.6W 1% FLAMEPROOF	4
R19	RX0072	RES, MO 100 1W 5%	1
R20	RX0080	RES, MO 4.7 2W 5%	1
R21, R93	RM0339	RES, MF 10 0.6W 1% FLAMEPROOF	2
R22	RM0147	RES, MF 16.2k 1/4W 1%	1
R24	RC0273	RES, ZERO OHM 1/4W	1
R25, 51	RC0083	RES, CF 100k 1/4W 5%	2
R26	RM0126	RES, MF 47.0k 1/4W 1%	1
R30, 50, 68, Z4	RM0001	RES, MF 1.00k 1/4W 1%	4
R31	RM0299	RES, MF 2.55k 1/4W 1	1
R32	RM0260	RES, MF 1.0M 1/4W 1%	1
R40, R92	RW0022	RES, WW 0.1 2W 5%	2
R41	RM0089	RES, MF 2.43k 1/4W 1%	1
R43	RM0031	RES, MF 3.32k 1/4W 1%	1
R45	RM0035	RES, MF 4.75k 1/4W 1%	1
R46	RM0116	RES, MF 25.5k 1/4W 1%	1
R74	RM0043	RES, MF 6.81k 1/4W 1%	1
R49	RM0065	RES, MF 200 1/4W 1%	1
R54	RM0012	RES, MF 100 1/4W 1%	1
R71	RM0002	RES, MF 10.0k 1/4W 1%	1
R72	RM0114	RES, MF 22k 1 1/4W 1%	1
R77	RC0082	RES, CF 100k 1/2W 5%	1
R94	RC0091	RES, CF 150k 1/2W 5%	1

REF #	PART #	DESCRIPTION	QTY
Miscellaneous			
B1, B2	MM0025	MISC, PC MT SCREW TERM 6-32	2
CD+, DC+	MT0003	TERM, KWIKDISC .25 PCB MT	2
CD-	MT0023	TERM, FASTON MALE PCMT 187X032	1
DC-	MT0031	TERM, FASTON .205 MALE PC MT	1
L4	540130	IND, CM CHOKE 150UH ELYTONE	1
L5	BF0007	BEAD, FERRITE	1
J3	JH0074	CNCTR, HEADER 8PIN LOCKING .1C	1
R23	KS0021	SURGISTOR, 4R 8A 70J SL154R008	1
	810066	MET, HTSNK CLIP HPS SERIES (FET CLIPS ON THE POWER BOARD)	6
	810068	MET, HTSNK HPS500 PWR SUPPLY (HEATSINK PLATE FOR THE POWER B)	1
	HN0006	NUT, KEP 1/4AF 6-32 ZNP {USED ON L4 (540130)}	1
	HS0004	SCREW, 6-32 1/4 PAN PHIL ZNP (USED ON MM0025)	2
	HS0079	SCREW, 6-32 1.5 NYLON PAN {USED ON L4 (540130)}	1
	HW0030	WASHER, FLAT .375OD #8 NYLON {USED ON THE L4 (540130)}	1
	MS0005	SILPAD, .009"" .3C/W TO3P (USED WITH 5 FETS)	5
	MS0014	MISC, CERAMIC PLATE TO-220 (USED WITH 1 FET)	1

Linear Amp PCB

Integrated Circuits

U1, U100	UA0009	OPAMP, QUAD 14P DIL TL074/084	2
U4	UF0013	FOTO, 6PIN MOC3012	1
U101, U102	UA0003	OPAMP, QUAD 14PIN DIL LM324N	2

Transistors

Q1, 5	QB0017	TRANS, NPN 150V 0.6A 2N5551	2
Q2, 6	QB0018	TRANS, PNP 150V 0.6A 2N5401	2
Q3, 7	QM0032	MOSFET, IRF9640 T0220AB	2
Q4, 8	QM0015	MOSFET, IRF640 TO220AB	2
Q9	QM0035	JFET, N-CH J111 TO92	1
Q100	QB0049	TRANS, TO92 2N3819	1
Q101	QB0002	TRANS, NPN 40V .6A TO92 2N4401	1

Capacitors

C1, 3	CC0072	CAP, CA 100PF 100V 10%	2
C2, 4	CF0119	CAP, F .047UF 100V 5% 5MM	2
C5, 7, 10, 11 103, 104 105, 106	CF0045	CAP, F .1UF 63DC 5% 5MMLS	8
C6, 50, 64, C67, 68	CE0098	CAP, E 22UF 50V 20% 5X11 .2LS	5
C8, 9, 12, C101	CE0106	CAP, E 22UF 35V BP 6X11 .2LS	4
C29, 61, 62, 110, 120, 121	CC0082	CAP, CA .1UF 50V 20%	6
C52, 54, 57, 58	CC0059	CAP, CA .1UF 100V 20%	4
C100	CF0099	CAP, F .68U 63V 5	1
C102	CF0090	CAP, F .022UF 100V 5% 10MMLS	1
C108	CF0035	CAP, F .022UF 100V 5% 5MMLS	1
C109,	CC0098	CAP, CA .047U 50V 10	1
C111	CE0003	CAP, E 2.2UF 50V 20% 105C	1
C122	CF0094	CAP, F .047UF 100V 5% 10MM	1
C127	CE0127	CAP, E 470UF 35V 10X21	1

Diodes

D1-D10 13-19	DS0001	RECT, 100mA 75V SIGNAL 1N4148T	17
Z1, 2	DZ0021	ZENER, 500MW 15V 5% 1N5245B	2

Resistors

C112	RM0260	RES, MF 1.0M 1/4W 1%	1
R2, 34, 108, 120	RM0001	RES, MF 1.00k 1/4W 1%	4
R3, 6, 18, 21	RM0043	RES, MF 6.81k 1/4W 1%	4
R4, 5, 19, 20	RM0031	RES, MF 3.32k 1/4W 1%	4
R7, R58, R61, R62, R63	RM0093	RES, MF 4.53k 1/4W 1%	5
R8, R9, R23, R24	RM0071	RES, MF 332 1/4W 1%	4
R10, 11, 25, 26	RM0024	RES, MF 2.21k 1/4W 1%	4
R12, R27	RX0074	RES, MO 4.7k 1W 5	2
R13, R28	RP0056	POT, 5k 8MM HOR TOP ADJ/COVER	2
R14, R29	RM0129	RES, MF 53.6k 1/4W 1%	2
R15, 30	RM0029	RES, MF 3.01k 1/4W 1%	2
R16, 128	RC0083	RES, CF 100k 1/4W 5%	2
R22	RM0039	RES, MF 5.11k 1/4W 1%	1
R32, 113, 119, C126, D110	RC0273	RES, ZERO OHM 1/4W	5
R37	RM0304	RES, MF 7.87k 1/4W 1%	1
R38	RX0097	RES, MO 3.9k 2W 5%	1

REF #	PART #	DESCRIPTION	QTY
R39, 60, 121, 122, 123, 124, 146	RC0006	RES, CF 10k 1/4W 5%	7
R100	RM0315	RES, MF 2.67k 1/4W 1%	1
R101	RM0255	RES, MF 7.15k 1/4W 1%	1
R102	RM0072	RES, MF 365 1/4W 1%	1
R103	RP0063	POT, A10K SINGLE/BRACKET	1
R105, R115, R117	RM0363	RES, MF 24.3k 1/4W 1%	3
R106, R107	RM0191	RES, MF 20.5k 1/4W 1%	2
R109	RM0307	RES, MF 1.15k 1/4W 1%	1
R110	RM0359	RES, MF 34.8k 1/4W 1%	1
R111	RM0183	RES, MF 12.4k 1/4W 1%	1
R114	RM0198	RES, MF 205k 1/4W 1%	1
R116	RP0065	POT, B50K DUAL / BRACKET +/- 10%	1
R120	RM0075	RES, MF 475 1/4W 1%	1
R125, 129, 149, 150, 151	RM0002	RES, MF 10.0k 1/4W 1%	5
R127,131	RC0037	RES, CF 2.0k 1/4W 5%	2
R130	RC0004	RES, CF 1.0M 1/4W 5%	1
R31, R84	RM0103	RES, MF 10.5k 1/4W 1%	2
R33, R85	RM0073	RES, MF 392 1/4W 1%	2
R35, R36	RM0113	RES, MF 20.0k 1/4W 1%	2
R136, 137	RM0011	RES, MF 100k 1/4W 1%	2
R140	RC0001	RES, CF 1.0k 1/2W 5%	1
R143	RC0127	RES, CF 30k 1/4W 5%	1
R144	RM0180	RES, MF 4.99k 1/4W 1%	1
R145	RM0134	RES, MF 121k 1/4W 1%	1
R147	RM0170	RES, MF 59k 1/4W 1%	1
R148	RM0041	RES, MF 61.9k 1/4W 1%	1
Z100	RM0364	RES, MF 1.91k 1/4W 1%	1

Miscellaneous

B1, B2, B3, B4	MM0025	MISC, PC MT SCREW TERM 6-32	4
CD-, SPKR-	MT0003	TERM, KWIKDISC .25 PCB MT	2
SHIELD	JH0028	CNCTR, HEADER 3PIN .100CTR	1
J100	JH0063	CNCTR, HEADER 3PIN .1CTR	1
J3	JH0074	CNCTR, HEADER 8PIN LOCKING .1C	1
TH1	KS0019	THERMISTOR, PTH9L04BD22TS2F510	1
SPKR+, CD+	MT0031	TERM, FASTON .205 MALE PC MT	2
SW3, SW4, SW5	SR0017	SWITCH, 2 POLE 2PDT	3
CLIPS FOR FETS	810066	MET, HTSNK CLIP HPS SERIES	4

REF #	PART #	DESCRIPTION	QTY
	810070	MET, HTSNK LEFT HPS500 FEA/LIN (LEFT SIDE HEATSINK)	1
	810071	MET, HTSNK RIGHT HPS500 F/L (RIGHT SIDE HEATSINK)	1
	HS0004	SCREW, 6-32 1/4 PAN PHIL ZNP (USED WITH MM0025)	4

AC Power PCB

C5	CF0057	CAP, FX .22UF 250V 10%	1
C9	CE0004	CAP, E 2.2UF 450V 20% 85C	1
D1	DB0009	RECT, 6A 400V BRIDGE	1
DC+	MT0003	TERM, KWIKDISC .25 PCB MT	1
DC-	MT0031	TERM, FASTON .205 MALE PC MT	1
J1	JH0044	CNCTR, HEADER 3PIN .156CTR	1
L1	540124	IND, CM CHOKE	1
L2	520025	XFMR, CURRENT YT-7102-1	1
R1	RC0004	RES, CF 1.0M 1/4W 5%	1
SW1	SR0009	PUSH TV5, MAIN POWER SWITCH	1
Z1	KV0001	VARISTOR, 275V 100J .6W	1

Shield board PCB

LED1, LED2	DL0021	LED, 3MM GREEN	2
J1	JC0118	CNCTR, 3PIN LED HARNESS 4"	1
	MZ0026	STANDOFF, 7.5MM LED 2PIN (TO SUPPORT THE LED)	2

Final assembly

	DL0023	LED, REFLECTOR (TO BE USED ON THE AMP HOUSING)	1
	HS0072	SCREW, #4 HI-LOW PAN PHIL ZNP (USED TO ATTACH THE CABLE TIE A)	6
	HS0073	SCREW, #6 HI-LOW PAN PHIL ZNP (4PC ON FEATURE LINEAR BOARD) (4PC ON CLASS D BOARD) (4PC USED WITH MC0003)	12
	JC0071	CNCTR, FEM-FEM HARNESS 8PIN 9" (FROM CLASS D TO FEA/LIN BOARD)	1
	JC0114C	CNCTR, 3PIN MALE/3PIN FEM LOCK (AC CONNECT TO JC0114A ON INPUT)	1
	JC0117C	CNCTR, 3PIN FEM/3PIN FEM 47.5" (CONNECT TO JC0117A ON THE INPUT)	1
	JC0135	CNCTR, CLASSD PWR CBL 5.75/6.5" (CD+/- FROM CLASS D BD TO FEA/L)	1
	JC0136	CNCTR, DC POWER CABLE 4.25""/5" (DC+/- FROM CLASS D BD TO AC PW)	1
	JC0137	CNCTR, SPEAKER CABLE 21"/23" (ON THE FEA/LIN BOARD)	1
	MC0003	CABLE, TIE 40MM W/ METAL RING (CABLE TIE WITH RING TERMINALS)	4

REF #	PART #	DESCRIPTION	QTY
	RP0076	POT, KNOB FOR HPS SERIES (KNOBS FOR THE POTS)	2
	RP0077	POT KNOB FOR HPS SWITCH (KNOB FOR THE PUSH SWITCH)	3
	RP0078	POT KNOB FOR HPS BUTTON (KNOB FOR THE POWER BUTTON)	1
	TS0017	FIBREGLASS, HT210 #2AWG 3" (SLEEVING FOR JC0137)	1

Hi level Input PCB

C1, C2	CE0106	CAP, E 22UF 35V BP 6X11 .2LS	2
C3, C4	CF0143	CAP, FY1 4700PF 250V 20	2
J1/J2	JC0139	CNCTR, HARNESS HI-LVL 8.5"	1
R1, R4	RW0037	RES, WW 470 5W 5	2
R2, R5	RC0118	RES, CF 15 1/2W 5%	2
R3, R6	RM0085	RES, MF 2.00k 1/4W 1%	2
T1, T2	500086	XFMR, POWER AUDIO YT-6821	2

Low Level Input PCB

C10	CE0106	CAP, E 22UF 35V BP 6X11 .2LS	1
C12	CF0143	CAP, FY1 4700PF 250V 20	1
C13, C16	CF0128	CAP, F .033UF 100V 5MMLS	2
C14, C15, C17, C18	CF0045	CAP, F .1UF 63DC 5% 5MMLS	4
J34, J36	JH0063	CNCTR, HEADER 3PIN .1CTR	2
R10, R11	RM0029	RES, MF 3.01k 1/4W 1%	2
R12, R13	RM0002	RES, MF 10.0k 1/4W 1%	2
RCA1	JC0052	CNCTR, RCA QUAD JACK	1
SW1	SR0022	SWITCH, DPDT TOGGLE C/W CAP PC	1
T10	500086	XFMR, POWER AUDIO YT-6821	1
W5	MM0025	MISC, PC MT SCREW TERM 6-32	1

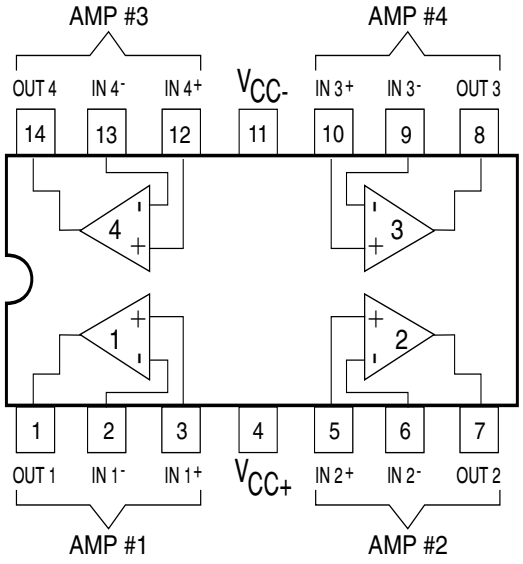
Miscellaneous

	630031	PCB, INPUT SHIELD HPS500/1K	1
	930035	CUP, OUTER PLASTIC HPS250 (OUTER PLASTIC CUP)	1
	930039	CUP, INNER PLASTIC HPS500 (INNER PLASTIC CUP)	1
	FH0010	FUSE, HOLDER PANEL MT RANGLE (ON THE INNER CUP)	1
	FS0026	FUSE, 4A 250V 1.25X.25 GLASS	1
	HN0001	NUT, KEP 3/16AF 4-40 ZNP (USED ON THE IEC CONNECT0R)	2
	HN0015	NUT, HEX KEP #8-32 ZNP (USED ON THE BINDING POSTS)	8

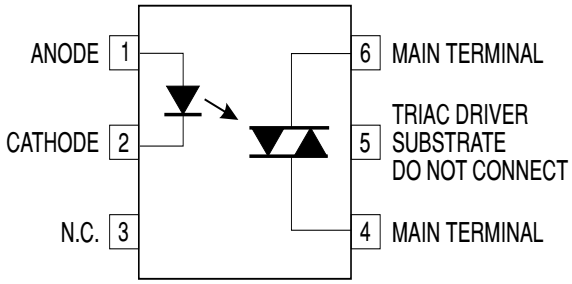
REF #	PART #	DESCRIPTION	QTY
	HS0041	SCREW, SELF TAP #4 BLK OXIDE (USED ON THE RCA)	1
	HS0055	SCREW, #4-40X1/2 PAN PHIL BLK (USED ON THE IEC CONNECTOR)	2
	HS0065	SCREW, #6-32X1/4 PAN PHIL BLK (USED ON MM0025)	1
	HS0072	SCREW, #4 HI-LOW PAN PHIL ZNP (TO SECURE THE CUPS AND CABLE TIES)	4
	HS0074	SCREW, #4-40X3/4 PAN PHIL ZNP (BETWEEN SHIELD AND INPUT PCB)	2
	JC0076	CNCTR, AC IEC SOCKET .250TAB (ON THE INNER PLASTIC CUP)	1
	JC0086	CNCTR, SINGLE BINDING POST RED (ON THE INNER PLASTIC CUP)	4
	JC0087	CNCTR, SINGLE BINDING POST BLK (ON THE INNER PLASTIC CUP)	4
	JC0114A	CNCTR, 3PIN FEM/2XFEM FASTON (CONNECT TO MATING HARNESS ON PWR B)	1
	JC0117A	CNCTR, 3PIN FEM/3PIN MALE 11" (CONNECTO TO MATCHING HARNESS)	1
	MC0003	CABLE, TIE 40MM W/ METAL RING (TO SECURE CABLE TIES)	2
	MM0027	RUBBER GROMMETS (2 ON THE TRANSFORMER)	4
	MZ0023	STANDOFF, .5" NYLON LOCKING	1
	MZ0028	STANDOFF, □" AL ID.151 #409 (BETWEEN INPUT SHIELD AND INPUT PCB)	1
	WI0032	WIRE, POWER CORD SPT2/IEC 8FT (POWER CORD)	1

HPS500 INTEGRATED CIRCUIT DIAGRAMS

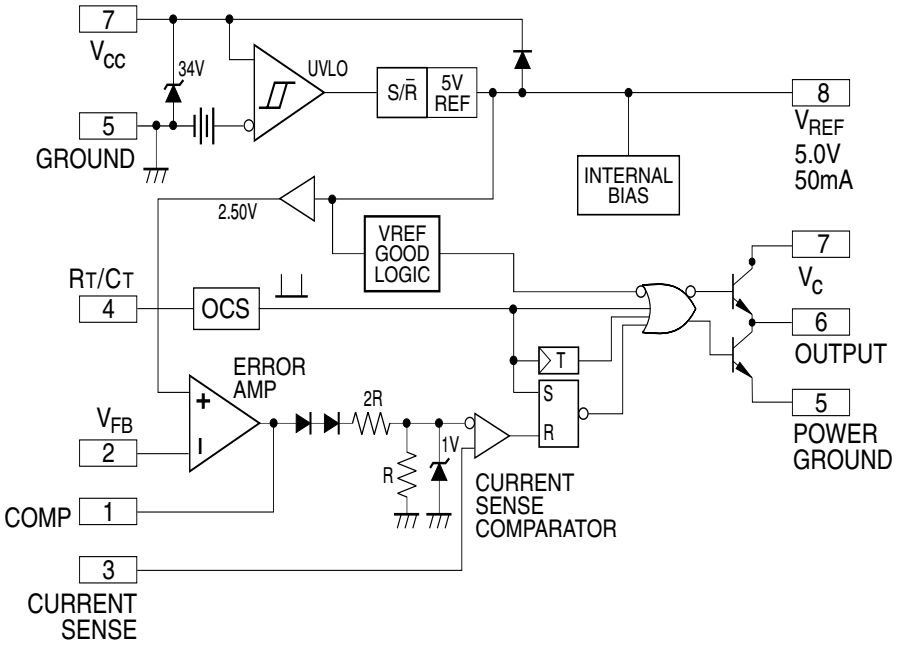
U1, U3, U100, U101, U102
OP-AMP QUAD, (TL074, LM324)

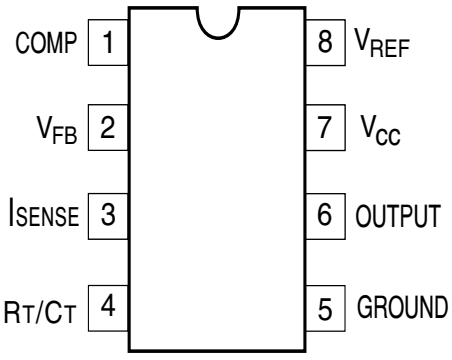


U4 - MOC3012 FOTO

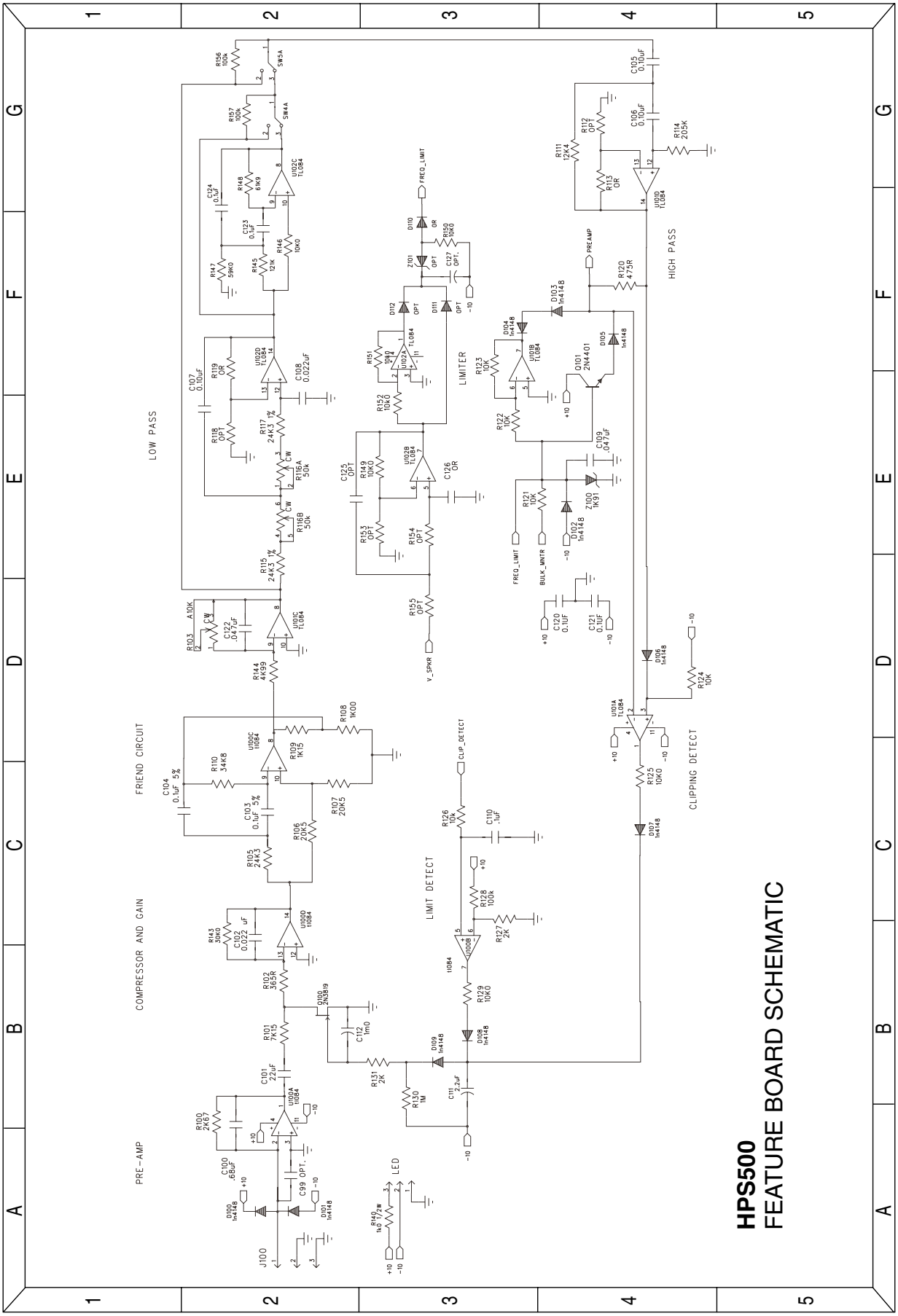


U5 - UC3842N PWM CONTROLLER

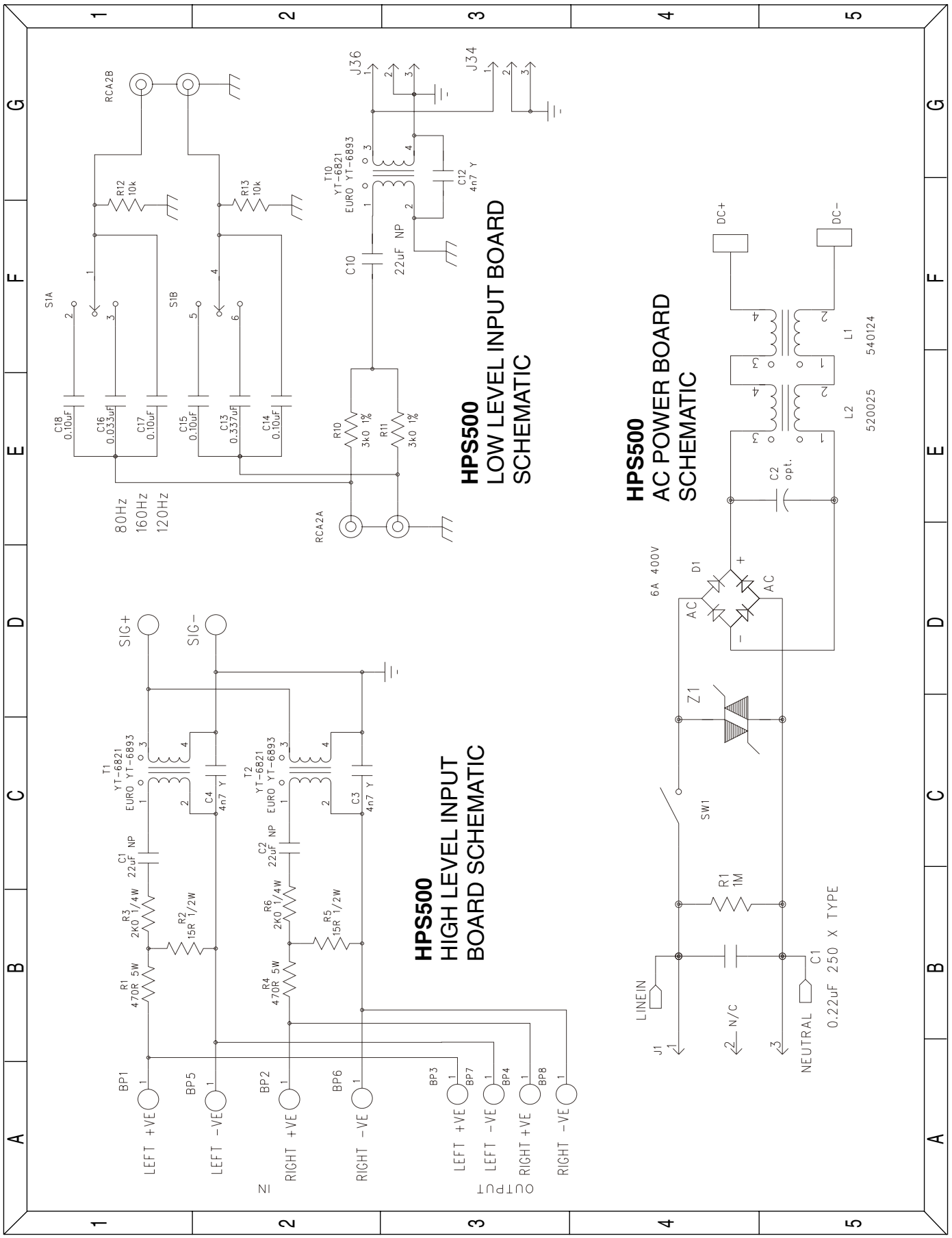




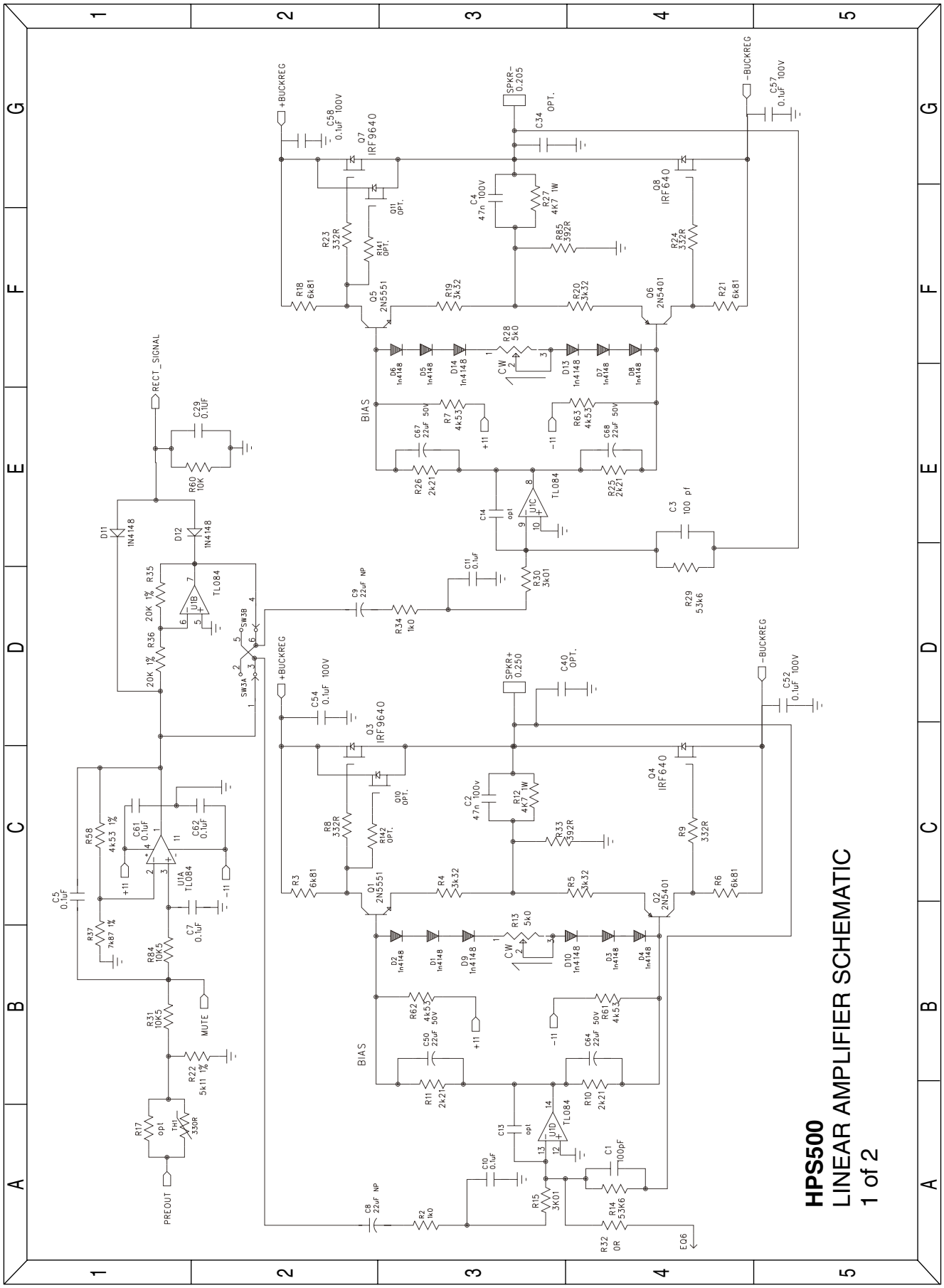
HPS500 FEATURE BOARD SCHEMATIC



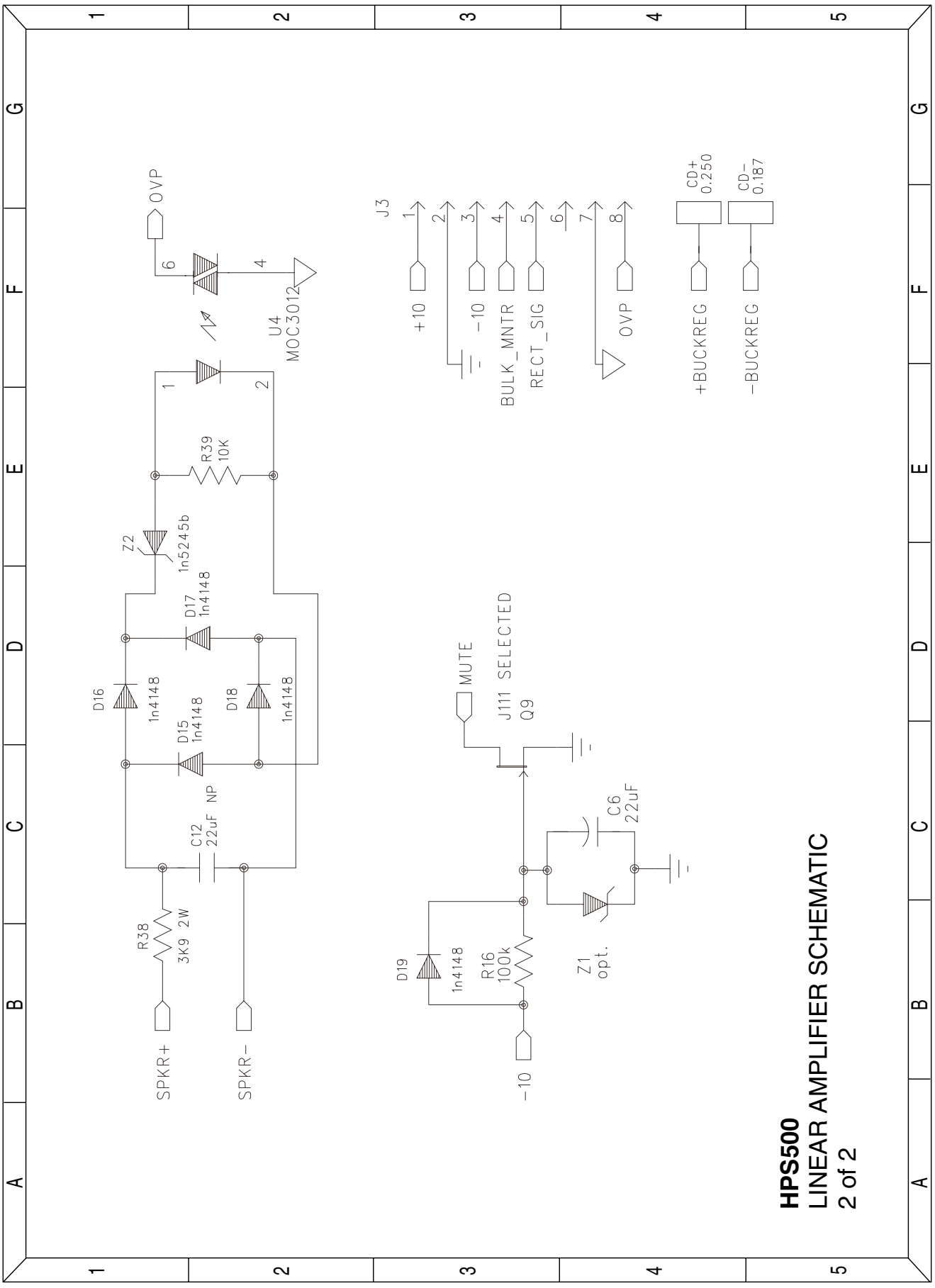
HPS500 HIGH LEVEL & LOW LEVEL INPUT AND LINE FILTER SCHEMATICS



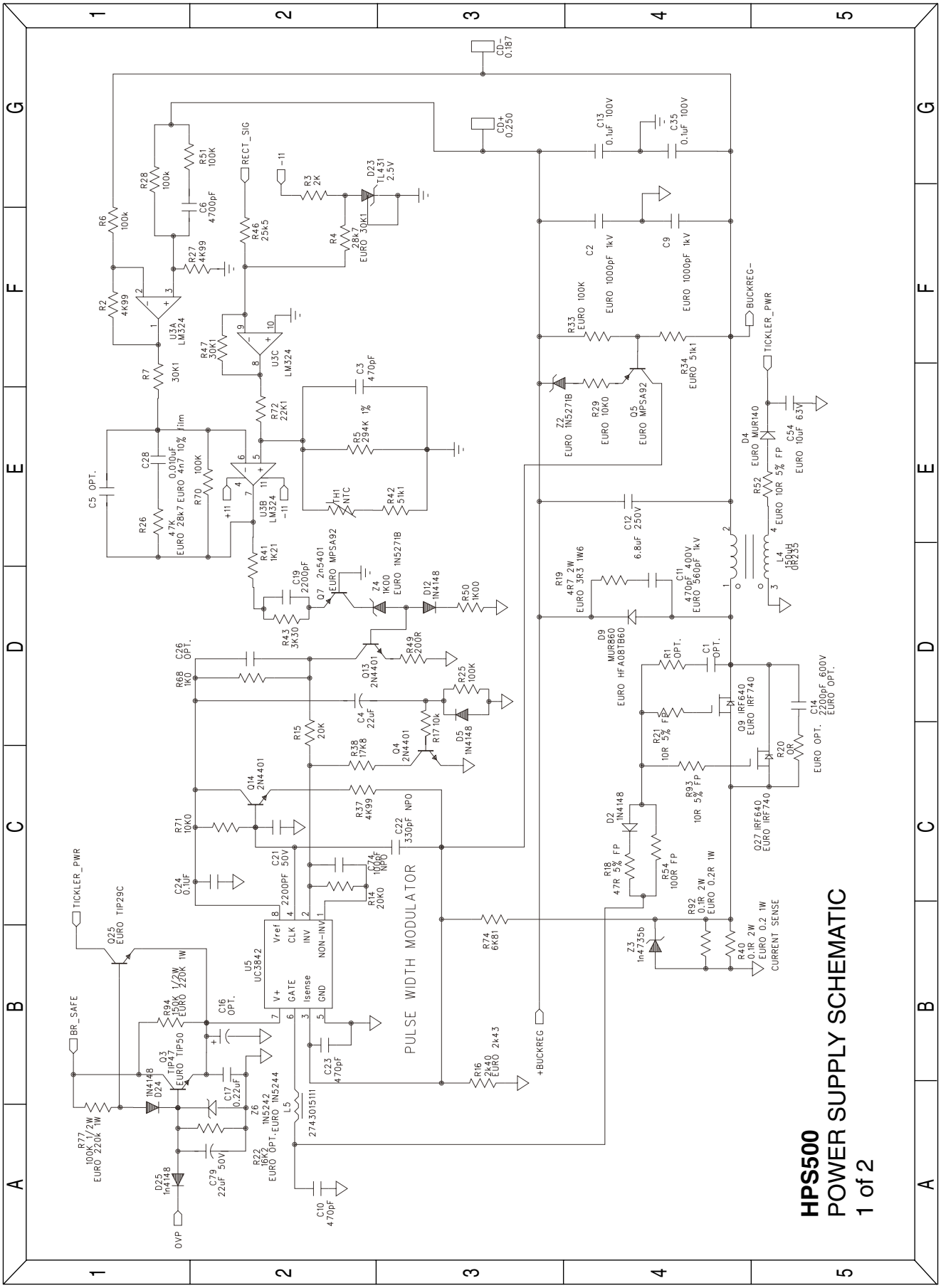
HPS500 LINEAR AMPLIFIER SCHEMATIC (1 of 2)



HPS500 LINEAR AMPLIFIER SCHEMATIC (2 of 2)



HPS500 POWER AMPLIFIER SCHEMATIC (1 of 2)



HPS500 POWER AMPLIFIER SCHEMATIC (2 of 2)